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Colorado Steel Mill Electrification

New Power Plant, Motor Drives, Powdered Fuel Plant and Electrical Cleaning of Blast Furnace Gas

MANY steel plants, abandoning steam engine drives with their isolated boiler plants, low steam pressures, high labor and maintenance cost and poor efficiency, are installing electric motor drives for the mills, supplied with power from a centralized power plant.

The Colorado Fuel & Iron Co. has followed this trend by installing a power plant and electric drives for the mills in its Minnequa Steel Works at Pueblo, Colo. This change has made possible great savings in the cost of producing steel. Seventy-five boilers in five boiler plants have been eliminated to date and, when the electrification program has been fully extended, a total of 118 boilers will have been abandoned.

Minnequa Steel Works is equipped for the complete process of steel making, from iron ore to the finished steel. It manufactures a large range of steel products, from railroad rails to a variety of wire products, which requires a large amount of power for the rolling and finishing operations.

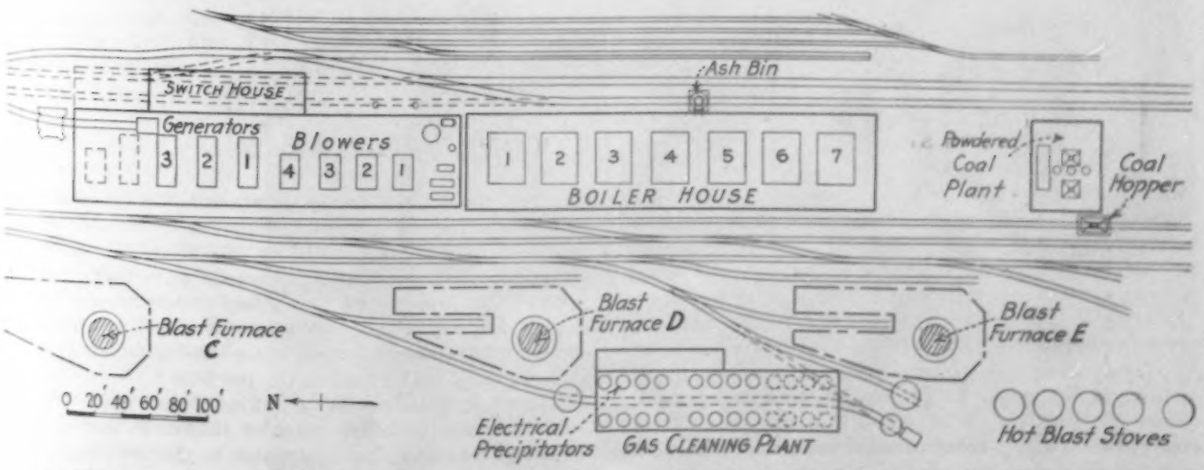
The new power plant is a complete unit consisting of power house, boiler house, powdered coal plant and gas-cleaning plant. It is operated as a separate department, with a complete organization, including testing, combustion and efficiency engineers, and a complete equipment of laboratory testing and operating instruments. In its relation with the other departments of the steel plant it is operated as a utility, purchasing its fuel—blast furnace gas or coal—and selling electric power, steam, blast air and water. The power plant is located adjacent to the blast furnaces, permitting the gas to be delivered easily to the boiler house.

Material for this article was prepared, under the general direction of E. H. Weitzel, vice-president Colorado Fuel & Iron Co., by H. W. Neblett, chief engineer for Wilfred Sykes, consulting engineer, Chicago, who handled the design and supervised the construction work involved in the changes described.

Power House

TWO main turbo-generator units are installed in the power house (which is 63 x 270 ft.) and a third is in course of erection. These units are 10,000 kw. (12,500 kva.) 6600 volt, 3 phase, 60 cycle. The generators are cooled by air circulating in a closed system: the heated air passes over water-cooled pipe coils and is returned to the generators. Thermostatically controlled doors open and admit fresh air from the power house, in case the temperature of the circulated air becomes excessive, due to a failure of the cooling system.

The generators are connected to a main 6600-volt bus, to which is connected the main power feeders to the mills and a tie line to the Southern Colorado Power Co. for the exchange of power. This tie line also



GENERAL Arrangement of the New Power Plant Equipment, to the East of the Row of Blast Furnaces. Four blowing units and three generators in the power house are to be supplemented later by one more of each. The electrical precipitators, west of blast furnaces D and E, are already being increased in number

acts as an emergency supply for auxiliary equipment in case of generator trouble.

Four turbo-blowers (Ingersoll-Rand) supply air to the blast furnaces, and are so connected to the cold blast lines leading to the hot blast stoves that any blower can be connected to any one of three furnaces. These blowers are rated at 55,000 cu. ft. of air per min. at 25 lb. pressure, for the altitude at which they are installed, 4800 ft. This corresponds to a rating of 60,000 cu. ft. at sea level.

An oil purifying system in the power house maintains a supply of pure oil to the main unit bearings. Each turbo-generator and turbo-blower has its individual oil circulating system and reservoir, which is an integral part of the unit. Oil from the reservoir is circulated over the bearings of the unit, by pumps driven either from the shaft of the unit or by steam. In addition, the reservoirs in each unit are connected to a storage tank of 1000 gal. capacity in the basement.

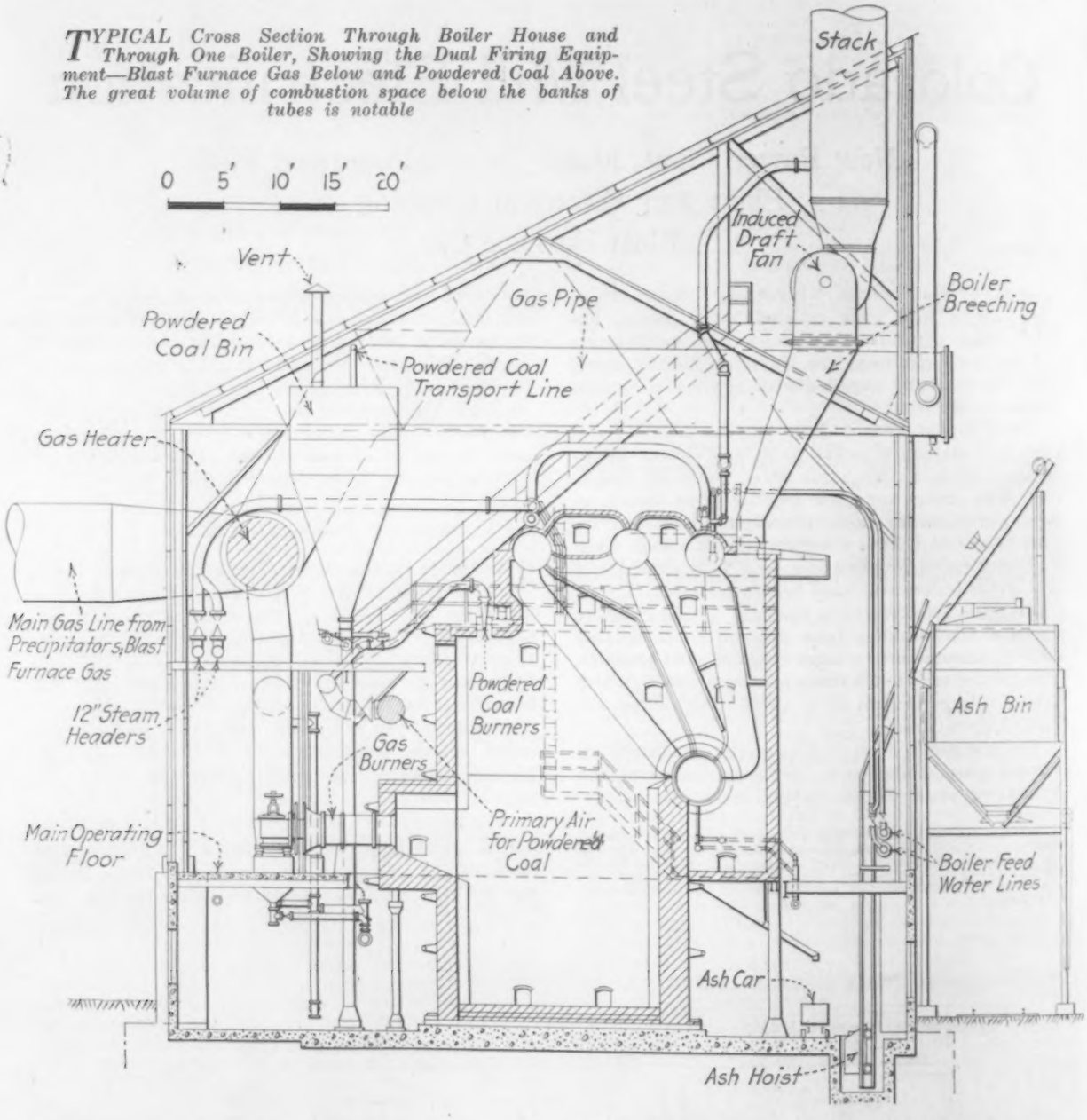
Used oil can be drawn from any reservoir in the units and discharged by gravity into this storage tank. From the tank the oil is passed through a centrifugal oil purifier which removes dirt and moisture. The cleaned oil is then pumped into a clean oil storage tank of 1000 gal. capacity located near the ceiling of the power house. A pipe line from this tank connects to the reservoir in each unit. In this way a constant supply of cleaned oil is maintained.

Feed water for the boilers supplying high-pressure steam for the power house consists of the condensate from the turbo-blowers and turbo-generators, plus the necessary make-up, or the raw water required. Each condenser has duplicate hot-well pumps driven by 230-volt d.c. motors. The hot-well pumps deliver the condensate to a reserve feed water storage reservoir.

From this tank it is delivered to a de-aerator connected with the evaporators for treating the raw make-up water. The evaporators remove scale-forming matter from the raw water and deliver it to the de-aerator, where the oxygen content of the entire boiler feed water is brought below 0.05 cc. per liter. From the evaporator and de-aerator equipment pure boiler feed water is delivered to the boiler feed pumps at approximately 205 deg. Fahr. The evaporator and de-aerator equipment (Griscom-Russell Co.) has a capacity of 350,000 lb. of boiler feed water per hour.

There is installed also a Graver Corporation soda-lime hot-water softening plant of 125,000 lb. per hour capacity, for supplying feed water to the low-pressure boilers, which supply steam at 150 lb. pressure for general use in the steel plant. Steam for the two boiler-feed water-treating plants is supplied by the

TYPICAL Cross Section Through Boiler House and Through One Boiler, Showing the Dual Firing Equipment—Blast Furnace Gas Below and Powdered Coal Above. The great volume of combustion space below the banks of tubes is notable



SEVEN Large Units in a Row in the New Power House: Four Turbo-Blowers in Foreground and Three Turbo-Generators Beyond Them. The generators are rated at 10,000 kw. each (12,500 kva.) at 6600 volts. Each blower can furnish 55,000 cu. ft. of air per min. for blast furnace use, at 25 lb. pressure

exhaust from the boiler-feed pump turbines, the steam-driven exciter, and the turbines on two dual-drive sets.

Water Supply

WATER for condensing purposes is provided in an unusual manner. The steel plant is located in a section of Colorado where the average annual rainfall is 12 in. or less. Practically all water available in this locality is from the snow banks in the Rocky Mountains, the nearest range of which is about 35 miles west of Pueblo. Very strict legislation pertaining to water rights exists in this section, on account of the limited supply.

The water supply system of the Colorado Fuel & Iron Co. is necessarily extensive and complicated. To insure a constant supply, the company maintains large storage reservoirs in the mountains and near the steel plant, with necessary canals and pipe lines. The total water supply for the steel plant, about 32,000,000 gal. per day, is delivered by gravity at 50 lb. pressure through pipe lines from storage reservoirs located some five miles away.

All of the water for the main steel plant is used for condensing purposes, by first passing it through the condensers of the turbo-blowers and turbo-generators in the power house, which discharge into the water mains of the steel plant. Water used around the blast furnaces is collected by a pump in the power house, from which it is pumped back into the system ahead of the condensers, thus utilizing this additional water for condensing purposes.

In case of failure or shortage of water from the main water supply, an emergency supply can be taken from an irrigation canal which runs through the plant. Water from this canal is taken through settling basins and is pumped into the water mains ahead of the condensers.

To insure sufficient cooling water at all times for

UPPER Floor of Boiler House, with Powdered Coal Firing Equipment for One Boiler in Foreground. There are eight burners, each with its own feed pipe and drawing fuel from overhead hoppers. The burners throw the fuel downward into a large combustion chamber, as shown in drawing

the condensers, a spray pond of 125 x 520 ft., with a capacity of 27,000 gal. per min., is provided. Water for the initial spray pond supply and for make-up to replenish evaporation can be either taken from the main water system or from an auxiliary storage reservoir located about one mile from the plant. The condensers in the power house are so arranged that any one, or all, can be connected to either the main water system or the spray pond, which is located at an elevation that permits the cooled water to flow through the condensers by gravity. The discharge from the condensers, when operating on the spray pond, is taken by two 12,000-gal. per min. motor-driven pumps and delivered to the nozzles of the spray pond. On account of the relatively low humidity at Pueblo, this spray pond gives very effective cooling.

Boiler House

LOCATED adjacent to, and in line with, the power house, the boiler house measures 66 x 286 ft. Seven 1200-hp. Stirling type watertube boilers, without economizers, are installed, designed for operation at 330 lb. steam pressure and 200 deg. Fahr. superheat.

Until all the present steam consuming units are replaced with electric drive, one, and sometimes two, of these boilers will be operated at 150 lb. pressure. This low-pressure steam is delivered from the boiler house into lines connecting to the low-pressure units in the steel plant, such as mill engines, hydraulic pumps, etc. When the demand for this low-pressure steam has been eliminated, all boilers will be operated at 330 lb. steam pressure. This change can be made without change in equipment, as all boilers, valves, steam lines and auxiliaries are designed for operation at the higher pressure.

Dual Fuel Supply

Blast furnace gas and powdered coal are used for fuel. Two boilers are equipped for burning blast furnace gas only, and five for burning both blast furnace gas and powdered coal. Each boiler has four horizontal gas burners of the aspirating type, in which the air for combustion is mixed with the gas. These burners have a capacity of 2,000,000 cu. ft. of gas per hour for each boiler. The gas supply is delivered to the boiler room through a main 8 ft. 8 in. in diameter, which connects through a water seal to a gas box in front of each boiler.

On each box are located four valves for controlling the gas to the burners. Blast furnace gas, which constitutes the main fuel, is delivered to the boilers at an average temperature of 375 deg. Fahr. It retains much sensible heat and is in an ideal condition for burning. Powdered coal is used only when there is a shortage of gas, as during blast furnace casts.

Powdered coal is delivered to each boiler through eight burners located near the top of the combustion chamber and 17 ft. above the gas burners. The coal is fired vertically downward, thus allowing a long flame travel and complete combustion before reaching the boiler tubes. Powdered coal is fed to the burners by screw feeders driven by adjustable-speed d.c. motors, controlled from the operating floor, allowing easy regulation of the quantity of coal fired.

Approximately 30 per cent of the air required for combustion is delivered under pressure through the burners with the coal. The additional air supply is admitted to the combustion chamber through three rows of air doors in the front wall of the boiler setting. Each row of doors is independently operated, to allow for proper adjustment of air.

A powdered coal bin of 30 tons capacity is provided at each boiler, the coal being delivered by gravity from the bins to the screw feeders. As much as 6 tons of coal per hour can be fired at each boiler, giving a boiler rating of over 300 per cent.

Minimum Trouble from Ashes

A very small amount of ash is deposited in the boiler settings, the majority passing out the stack with the flue gases. The ashes, removed once a week through cleanout doors in the bottom of the combustion chamber, are loaded into a small car which discharges into a skip hoist, and delivered to a storage bin outside the boiler house. No water screens are required, as the combustion chambers are so designed that the bottom is sufficiently cool to prevent slagging.

Short individual stacks are installed, one for each boiler. The draft is maintained by an induced draft fan at each boiler, driven by an adjustable speed d.c. motor.

The present average load on the high-pressure boilers is 300,000 lb. of steam per hr., with peaks of 340,000 lb. per hr., or an average of 60,000 lb. per hr. per boiler. The low-pressure steam load averages 50,000 lb. per hr. per boiler.

(To be concluded)

Growing Use of Steel Shelving for Storage Purposes

A RECENT investigation conducted among 62 mill supply houses in the United States revealed the fact that 59 of them used both steel and wood shelving. The gross amount used represented a length of 58,279 ft., a height of 10¾ ft. and a depth of 22 in. Of this total only 1350 ft. was steel. According to Guy L. Irwin, Sheet Steel Trade Extension Committee, Pittsburgh, who conducted the survey, this percentage of steel to wood can be taken as fairly general throughout mill supply houses and warehouses of the country.

P. J. Whipple, president Hibbard, Spencer, Bartlett & Co., Chicago, which is said to have the most extensive installation of shelving in the hardware trade, speaks as follows concerning that company's wide use of steel shelving: "It is more flexible. It is easily kept clean. It promotes cleanliness and is fire-resistive. Careful calculation convinced us that storage equipment costs no more in steel. When we took into account the present high cost of other materials, which could be used for storage purpose, the price of labor necessary to put them together, and the increased space occupied by this makeshift equipment, we found the cost, if anything, higher than that of steel."

Steel Shelving Offers Resistance to Fire

Manganese and Preparedness

Cleveland Meeting Stresses Importance of Adequate Ore Supplies Both for National Emergency and for Future Needs of Steel Industry

MANGANESE as the key mineral in any program of national industrial preparedness was brought forcibly to the attention of the country at a meeting at Cleveland on April 19. Two sessions were held under the auspices of the Ohio Section and the Iron and Steel Committee of the American Institute of Mining and Metallurgical Engineers, and about 125 institute members and other representatives of mining and consuming interests were in attendance. Not since the war has the question of manganese supplies for the steel industry of the United States come up for such serious discussion.

Both the political and metallurgical aspects of the subject were canvassed. Naturally some reference was made to the tariff—on the one hand from the standpoint of the public interest and on the other hand from that of the owners of the meager deposits of domestic ore that can be utilized in the manufacture of ferromanganese. But the tariff phase was only incidental.

What was emphasized by men whose opinion on this subject is of the highest competence is that steps should be taken by the Government to insure the accumulation of a supply of high-grade manganese ore in the United States against a national emergency, also that for the maintenance of our steel industry the development of foreign manganese deposits under American auspices is a matter of first importance.

The metallurgical side of the problem was well presented at the meeting, as was the increasing draft the steel industry is making upon the country's manganiferous iron ore deposits, in view of the higher content of manganese in our basic pig iron production which has been a significant development of recent years.

Political Phases of the Manganese Problem

MORNING and afternoon sessions were held at the Hotel Cleveland and the program and all meeting arrangements spoke well for the planning of the Ohio Section and the Iron and Steel Committee of the institute. Dr. C. K. Leith, professor of geology, University of Wisconsin, presided at the morning session, and J. V. W. Reynders at that of the afternoon. Dr. Leith opened with a thoughtful address which dwelt in a discriminating way on the political aspects of the world manganese situation. Only an outline is possible here:

Nearly 85 per cent of the world's production of manganese is used by the United States, England, Germany and France; and roughly a third of the total is used by the United States alone. On the other hand, over 85 per cent of the world's production comes from Brazil, Russia, India, the Gold Coast of Africa and the Sinai peninsula. Only 35 per cent of the needs of the United States were met from local sources under the high prices of war time, and under our recent tariff only 11 per cent. The steel industry uses over 90 per cent of all the manganese mined and is acquiring control of parts of all the principal fields—the Germans in Nikopol, the English in India and Gold Coast, and the Americans in Georgia, India, Gold Coast and Brazil. Possibilities of monopoly are being carefully watched. Reports that the Germans have secured this, the English that, and the Americans another supply bring to our minds certain implications of national political advantage.

Exploitation of Foreign Deposits

The manganese situation well illustrates the outward commercial and political thrust of the North Atlantic countries against the rest of the world in the exploitation of mineral resources. The countries possessing manganese have felt and will continue to feel this pressure and must yield to it, whether they like it or not.

It should be clearly understood that nature's distribution of sources requires international exploitation of certain minerals if our material civilization is to go forward along present lines. The movement cannot be stopped. It requires the open door and in some measure it requires the overriding of national self-determination. Sooner or later our country should formulate a policy which discriminates necessary from unnecessary exploitation.

The public has not been adequately informed about the facts of manganese or even as to our country's vital need for it. The reports of manganese committees of the Mining and Metallurgical Society of America and the American Institute of Mining and Metallurgical Engineers are of great value, but as yet they are scarcely more than early gropings and have not been carried far enough to give a firm basis for sound public opinion.

The Futile Tariff

Referring to the tariff phases of the question, the speaker said that when manganese export tariffs are made too high, as was done recently in Brazil, other sources are drawn upon. In the case of our own import tariff, seeing that its purpose is not primarily to produce revenue and since our supplies of manganese are too limited to play any large part in the industry and should be conserved for times of national emergency, the tariff becomes merely a nuisance to the consuming industry and hastens the already too early date of exhaustion of domestic supplies.

Four Possible Solutions

Discussing the war aspect of the manganese problem, the speaker referred to four possible solutions for the North Atlantic countries: First, development of domestic supplies. However, in the United States these are quite insufficient. Second, substitutions for manganese. In the present state of science these are not practical on any great scale. Third, storage. In the year preceding the war Germany imported over twice its normal consumption of manganese, but still had an acute shortage. Since the war France has imported several times the manganese needed for the steel it has produced in that time. To make the United States independent for a war as long as the last one would require storing of immense tonnage, the withdrawal of which from the market would materially affect normal

supply and demand and hence prices. At best, for a long continued war storage is only a partial and temporary expedient. Fourth, the really adequate solution is control of channels of flow from the sources, which means control of sea routes. Obviously a combination with the British Empire would better assure the safeguarding of our far-reaching supply routes than any other method. Together these countries control commercially over 75 per cent of the world's production of minerals. In peace times their combined action could insure a more orderly development of the world's minerals by fairer methods than are now in some places in vogue.

No Tariff Stand

R. C. Allen of Oglebay, Norton & Co., Cleveland, chairman of the committee on program for the meeting, in commenting on its purpose said that no stand on the question of manganese tariff was to be taken. The importance of the manganese problem in its national and international aspects was not generally appreciated and one purpose of the meeting was to discuss the policy to be adopted by the United States to meet the situation. The studies thus far made have been largely under the auspices of the two societies of mining engineers, and as yet the Government had no policy designed to secure adequate and continuous supplies of this essential mineral.

American Experience Repeats Great Britain's

D. F. Hewett, United States Geological Survey, found a parallel between the discussions now going on in the United States as to supplies of essential minerals and those which were common in Great Britain after the Napoleonic wars. In 1820-30, 45 per cent of the world's known copper deposits were in England. The peak of British lead production was reached in the eighteen-fifties. At one time Great Britain had over one-half the world's iron production. The position of the United States now, in respect to certain minerals, is what Great Britain's position was 50, 60 and 70 years ago. In the speaker's opinion the United States is likely to pass through the peak of domestic production of the principal metals in the next 20 or 30 years and must face the question of depending on foreign sources for some of these supplies.

Development of One Virginia Deposit

J. Sharshall Grasty, geological engineer, Charlottesville, Va., considered the main question before the meeting a political one in spite of disavowals. As to the tonnage of manganese ore in the United States, there is no agreement that the conclusions of the Sub-Committee on Manganese are correct. He had investigated the occurrence of manganese ores in Virginia and knew in detail of a very large deposit northwest of Woodstock that had been developed by the Hygrade Manganese Co. In the past eight years an ore body of 300,000 tons had been blocked out and concentration of the ore is under way. It had been estimated that the deposit contained an additional 700,000 tons of 30 per cent ore. Referring to this last statement of Mr. Grasty, a member observed that he had never seen a replacement deposit concerning which it was possible to know a foot ahead of workings what amount of ore would be found.

Dr. Leith reminded the meeting that foreign exploitation was in reality the main question in connection with manganese. The trouble has been that there is no recognition in the public press of the necessity for exploiting foreign supplies. While there have been disclaimers of exploitation by the United States, the fact is that that is the prime consideration in connection with any discussion of industrial preparedness.

Work of Engineers' Committees

Col. Arthur S. Dwight commented on the importance of united effort to safeguard supplies of manganese and other strategic minerals. It was gratifying to note the importance atttached at Washington to the report of the institute's committee on manganese, also the way in which the mining engineers had responded to the call of the Assistant Secretary of War in connection with the industrial preparedness movement. The Mining and Metallurgical Society was carrying on a similar manganese inquiry, but particularly with reference to peace times, while the institute's committee devoted its efforts to ways and means of meeting a situation that might arise in time of war. However, it was agreed between the two societies that they should work in entire harmony.

Needs of the Steel Industry

H. M. Bolyston, professor of metallurgy, Case School of Applied Science, gave a synopsis of his paper, "The Importance of Manganese in the Steel Industry." He computed theoretical needs equivalent to 453,935 gross tons of 80 per cent ferromanganese in 1925. The statistics showed a consumption of about 100,000 tons less than this in that year. Some of the difference was accounted for by the growing practice of using a pig iron high in manganese, also by the employment of substitutes such as silicomanganese.

In the brief discussion following the paper, the suggestion was made that it would be desirable to have more information concerning the increased consumption of manganese in the iron and steel foundries of the country. David McLain stated that higher manganese was being specified in connection with the manufacture of semi-steel and other high-test castings. He estimated that the average manganese content in foundry pig iron had increased from 0.40 per cent to 0.65 per cent in the past few years.

Leonard B. Miller referred to various additions to the supply of manganese ore from domestic sources, which had resulted from the encouragement of the present tariff. He gave some details of the Bradley leaching process for ferruginous manganese ores. Operations under the process have been carried on in Minnesota and in the Batesville district, Ark. By this method of beneficiating oxides and carbonates an ore had been secured, in one case running 76.48 per cent in iron and manganese, largely manganese monoxide.

Price the Deciding Factor

In a concluding comment on some of the points developed in the morning's discussion, D. F. Hewett said that no statement of domestic manganese reserves had any value unless it also specified at what price the supply would come out. In fact, the only thing worth talking about in connection with manganese ore is price and the quantity that will come out at a certain price. It should not be overlooked that in war time prices ranged from 80c. to $1 and as high as $1.10 per unit of manganese. One feature of the report of the Sub-Committee on Manganese was its forecast of manganese ore tonnages that would come out at various price levels. The schedule constituted in effect a manganese index scheme, and tonnages were set down corresponding to $10, $25, $35 and $50 per ton. The American Mining Congress had contended that the tariff adopted in 1922 would bring out from domestic sources one-half the needed supply of manganese ore. The speaker and others in the U. S. Geological Survey doubted that any such amount could be produced in the United States, and he cited production figures for the last four years, showing how closely they compared with the estimates of the Geological Survey.

Silicomanganese as a Substitute for "Ferro"

T. L. Joseph, superintendent and metallurgist of the Bureau of Mines experiment station at Minneapolis, presented a paper on "Minnesota Manganiferous Iron Ores in Relation to the Iron and Steel Industry." In its preparation E. P. Barrett and C. E. Wood were associated with him. For the period 1911-1926 he showed that an average of 14 lb. of manganese in the form of ferromanganese and spiegel was used per ton of steel produced. While there had been a tenfold increase in the 15 years in the consumption of manganiferous iron ores, chiefly to produce basic pig iron, there had been no decrease in the pounds of manganese required per ton of steel. The average annual manganese requirements in the steel industry in the next 20 years will be about 375,000 tons. The manganiferous ores of Minnesota were discussed and it was stated that Minnesota can supply the needs for high manganese pig iron for 20 to 30 years. Manganese is desirable in basic iron because of sulphur elimination, better quality of steel, saving of ferromanganese,

more fluid slags in the open-hearth, less lime and fluorspar, faster working heats and increased tonnage. Several methods designed to produce ferromanganese from Minnesota manganiferous iron ores are being investigated by the Bureau of Mines in cooperation with the Minnesota School of Mines Experiment Station. The manganese and iron in Cuyuna ores are too closely associated to be separated magnetically after the iron oxides have been metallized or converted into magnetite.

In view of the large domestic deposits of silicious manganese ore, the possibilities of using manganese-silicon alloys in place of ferromanganese and ferrosilicon should be considered. While silicomanganese cannot be substituted for ferromanganese and ferrosilicon in all cases, it would be well to determine how far we can rely upon silicomanganese in times of national emergency. If silicomanganese can be sold at prices about equal to those of ferromanganese there is a fair chance of creating a market in normal times.

Manganiferous Ore Supply to Match That of Lake Iron Ores

Carl Zapffe, Brainerd, Minn., manager of the iron ore properties of the Northern Pacific Railway Co., had prepared a paper for the meeting, dealing with the "Reserves of Lake Superior Manganiferous Iron Ores," but was not present to read it. The needs and probable supply of manganiferous ores on Lake Superior ranges were discussed at length. Lake iron ores shipped in 1902 were 26,000,000 tons; in 1926 they were 60,000,000 tons. In the same period there was a rise in the use of manganiferous iron ores from 269,000 tons to about 2,500,000 tons. In 1902 manganiferous ores were 1 per cent of all ores produced; now they are 4 per cent. Since 1902 shipments of such ores have been 28,266,562 tons. Taking the assured iron ore on Lake Superior at 1,200,000,000 tons (with probably 1,368,000,000 tons more available) the author figured that to satisfy iron ore shipments of 1,200,000,000 tons in the next 20 or 25 years there would be needed, on the 4 per cent basis, a total of 48,000,000 tons of manganiferous iron ores. This requirement, he concludes, can be easily met, competent estimates putting the Cuyuna reserves at 44,000,000 tons, Mesabi at 2,000,000 tons and Gogebic and Menominee at 20,844,880 tons—a total of 66,844,880 tons.

Sharp Passage Over the Manganese Ore Tariff

A somewhat heated discussion followed a paper on "Manganese Resources in Relation to Domestic Consumption" by J. V. W. Reynders, New York. Liberal excerpts from this paper were given in the last issue of THE IRON AGE, so it will suffice here to mention only its principal thesis. Mr. Reynders believes that the present tariff should be removed since it is impotent to develop an American supply of manganese, since very little high grade ore exists. In fact, the tariff is likely to produce the rapid exhaustion of such moderate supplies as are known.

A. G. Betts and L. B. Miller both pointed out that Mr. Reynders' analysis depended upon the present definition of manganese ore. Any innovation in the metallurgy of ferromanganese or spiegeleisen would entirely alter the statistics, as would the development of economical concentration methods for the low grade manganiferous deposits now known. They favored the present tariff because it is responsible for a high market value of manganese, which in turn encouraged experiments on the lower grade deposits, and enabled a concentrator to sell its product at a price which would pay for operations.

J. C. Adkerson also warmly challenged the accuracy of the statistics on American reserves, saying that the present scale of prices due to the tariff had encouraged the blocking out of important tonnages of high grade ore, both in Montana and in Virginia. One pronounced and unmistakable result of four years of the present tariff is to reduce imports of manufactured ferromanganese to about one quarter of the former amounts, and to increase imports of ore by an equivalent tonnage.

Manganese in Non-Ferrous Alloys

M. G. Corson's (New York) paper on this subject was summarized by Dr. Zay Jeffries, Cleveland. He noted that the pure metal manganese has no commercial use. Little is known about its properties. The high affinity for oxygen which makes it so valuable in the steel industry, is responsible for its use as a scavenger in copper and brass castings.

The minimum amount must be used when treating pure copper, for a residue of 0.01 per cent manganese reduces the electrical conductivity 2.2 per cent. "Manganese bronzes" are frequently exploited for particular purposes; usually they are 60:40 brasses, having been treated with a little manganese, sometimes so little that none remains in the finished alloy, and containing sizeable amounts of other elements such as aluminum, tin, iron or nickel. Copper with 10 to 20 per cent manganese makes an alloy called "Manganin," useful for resistance coils in scientific instruments, since its electrical characteristics are practically independent of temperature.

Manganese is added to the hardened aluminum alloys of the duralumin family (0.75 per cent) and hard aluminum sheet for domestic utensils (1½ per cent). Non-tarnishing silver alloys also contain manganese.

Manganese Not a Quantitative Factor

Doctor Jeffries noted that while these special alloys require manganese metal, the percentage in all of them is quite low, and the total consumption is relatively insignificant. Cost of the metal is not the ruling factor; the known useful alloys simply require a minimum amount of manganese. Some alloy systems have recently been studied as far as 30 per cent manganese, and interesting properties developed which apparently destine them for future exploitation. For instance, it is known that manganese restores the corrosion resistance to magnesium, after alloying with aluminum to increase its physical properties.

Low Carbon Manganese Steels

A voluminous paper by Sir Robert Hadfield was presented in abstract by T. T. Read. The studies covered the range from 0.6 to 83.0 per cent manganese, all with carbon less than 0.1 per cent. Some portions of this system had been explored before. Hadfield worked on a series of 60 lb. ingots, and determined physical and electrical properties.

No outstanding qualities were found which indicate any immediate commercial importance to any of these alloys. The principal gain is a clearer insight into the function of carbon in the present commercial manganese steel (1 to 1¼ per cent carbon; 12 per cent manganese). Carbon is as important to them as to ordinary steels; it increases the tenacity, is responsible for the work-hardening phenomenon, and causes the changes on heat treatment. Actual experiment, therefore, has verified the conclusions reached by theoretical metallurgy.

Alloys With 0.25 Per Cent Carbon

John Howe Hall expressed the hope that the next systematic research would be on alloys containing about 0.25 per cent carbon. At the present time such a steel containing about 1½ per cent manganese is growing in importance as a competitor with low-nickel, low-carbon steels for heat treatment, and it would not be strange if higher manganese steels would be equally useful.

Social Features

The meeting was followed by a dinner Tuesday evening with an attendance upward of 125. The principal speaker was Brig. Gen. Dwight E. Aultman, United States Army. Prof. H. M. Boylston, Case School of Applied Science, presided, and Homer McKeehan, Cleveland attorney, acted as toastmaster. The Cleveland committee gave a luncheon Tuesday noon, at which all who attended the meeting were guests. On Wednesday visits were made to Cleveland docks and a number of iron and steel plants.

The General Electric Co., Schenectady, N. Y., received orders during the first quarter amounting to $77,580,581, compared with $86,433,658 in the corresponding quarter of last year. Net profits available for dividends during the 1927 period totaled $11,671,731.

Pension Plans Call for Careful Study

Survey by Metal Trades Association Shows Need of Sound Financing and Actuarial Analysis*

A SURVEY conducted by the National Metal Trades Association and a series of studies made by its department of industrial relations, covering nearly 500 of its member shops of all sizes in 13 of its branches, indicates that approximately 8 per cent of its members have formal plans for the pensioning of old employees.

Of the shops with less than 100 employees, less than 1 per cent operate formal pension systems; of the shops with 100 to 300 employees, slightly more than 2 per cent have pension systems; of those with 300 to 1000 employees, more than 14 per cent have pension systems; of those with more than 1000 employees, approximately 2 per cent have pension systems.

Members not having formal pension plans are divided, almost equally, into three classes, regardless of the number of employees:

1. Those who provide financial aid, where it is needed, on the merits of the individual case.
2. Those who limit their assistance to old employees to providing easy jobs such as watchman, doorkeeper, etc.
3. Those who have as yet made no effort toward providing for superannuated employees.

That these members do not have formal pension plans is not proof that they have not studied the problem. A number are known to have made careful studies and expended considerable money in collecting facts before they decided not to assume the burden of any of the older types of pension plans, preferring to wait until some better method for caring for superannuated employees was devised in which the difficulties and uncertainties of the older systems were eliminated or greatly diminished.

Existing Types of Pension Plans

At the present time, pension plans may be considered to be of four general types—the informal, formal, actuarial, and underwriters'. Older plans are generally of the first two types:

INFORMAL PLANS

1. The informal, benevolent or gratuitous plan, under which the employee is retired at the employer's discretion, and at an amount commensurate with the employee's social status and previous earnings. Such a pension plan may be announced as a general policy of the employer, or accepted through inference on the basis of precedents.

FORMAL

2. The formal plan, under which all legal obligations of the employer may be denied, but which lays down fixed rules for the retirement of the employee. Sometimes, however, the employer guarantees, for the life of the pensioner, any such pensions as may be granted to a particular employee. The intent in such cases is to make the act of awarding the pension to a particular employee the contract, rather than the original announcement of the plan. The cost of this type of pension plan is usually borne as part of the active payroll. Another form of plan of this same general type is that under which the employee contributes a portion of his salary (generally matched by the employer) toward the building of a retirement fund, which may be a part of the financial structure of the employing company or may be handled separately. A very general criticism of this form of pension plan is that there is no actuarial relationship between the amount of the contributions and the schedule of benefits.

Modern pension plans are usually of the following types:

ACTUARIAL PLANS

3. The actuarial plan, which, in effect, is a sort of mutual self-insurance, which may be financed entirely by the employer or jointly with the employee. Under this plan, with the guidance of an actuary, an attempt is made to set up an adequate reserve to meet liabilities as they accrue. Often the funds are entrusted to an agency divorced from the company itself, either through a board of trustees or a trust company. Under this plan, the employer alone, or employee and employer jointly, take the responsibility for administration and carry all risks, such as longevity, security of principal, and interest yield on invested funds.

UNDERWRITERS' PLANS

4. The underwriters' plans, under which several insurance companies sell "annuities." Several varieties of these plans are offered, one being that under which the employer purchases an annuity for each employee at the end of every service year, the cumulative effect of these annuities constituting the pensioner's income. Ordinarily, the accumulation of annuities continues until the individual employee becomes eligible for pension, whereupon pension payments begin. If, for any reason, such as death or termination of employment, the employee fails to become eligible for pension, payments made toward the purchase of annuities revert to the employer. (When the employee also contributes to the pension plan, such contributions revert to that employee or his estate.) Under another plan, the employer, or employer and employee jointly, purchase small annuities outright and deliver them to the employee concerned on the completion of each year's service. Annuities purchased on this basis are the property of the employee and are payable when he reaches the pension age, regardless of when his period of employment terminated. Under this plan, no payments are made in case of death.

A criticism of the underwriters' plans is that they make no provision for employees who have already completed 15, 20 or 30 years of service. To meet this criticism, the insurance companies sell annunities to cover back service, which may be paid for in a lump sum or funded over a period of years.

A number of other varieties of underwriters' plans include death and total disability benefits in addition to pension benefits, but since such plans are merely combinations of group life insurance and group annuities, for the sake of clarity they will not be discussed here.

Financing

Each of the various plans mentioned above has its individual advantages and disadvantages, and the choice of one in preference to the others is largely a matter of judgment on the part of the employer. The merits of various plans, the objections to each, the value of employees' contributions, the schedule of benefits, the retirement age, and similar points, are all important, but *secondary to the financing of the plan.* Funds must be provided some way or another to meet pension obligations. *This cost, in any case, is equal to the payments to pensioners, plus the expense of administration, less such income as is received from interest on invested funds.*

PAYMENTS TO PENSIONERS OFTEN EQUAL 10 PER CENT OF PAY ROLL

Irrespective of how the pension fund is financed, when payments to pensioners begin they increase, quite rapidly, for two reasons. In the first place, it is obvious that the payments of pensions granted in each year must be added to the amount still being paid on pensions granted in previous years. If there has been no growth in the organization, and if therefore the number and amount of pensions granted each year is approximately the same, the time will come when the deaths among all active pensioners equals the number and amount of the new pensions granted. At that time the total pension payments will cease to increase.

Assuming deaths to occur in accordance with mortality tables used by life insurance companies and the amount of the pension paid to each individual to be approximately the same, the pension curve will cease rising and the total pension payments become constant after the plan has been in effect about 25 years, the total annual payments at the end of that period being slightly over 12 times as great as the amount of the first year's payments. This statement applies to concerns in which there has been no growth, and in which, therefore, the number of persons arriving at pension status each year might be presumed to remain fairly constant. The disturbing factor of the situation is that most successful industries have, during the past 20 or 30 years, shown a substantial growth.

Actuaries claim that pension status ordinarily is not reached until after at least 25 years of employment,

*Abstract of report read at convention of National Metal Trades Association at Detroit, April 25 and 26. It is based on a study by the committee on industrial relations, assisted by W. E. Odom, director department of industrial relations. The committee is composed of Jacob D. Cox, Jr., Cleveland Twist Drill Co., Cleveland, chairman; W. W. Coleman, Bucyrus Co., South Milwaukee, Wis., and Robert E. Newcomb, Worthington Pump & Machinery Corporation, Holyoke, Mass.

and if a certain fairly constant percentage of 100 men on the payroll in 1895 reach the pension status in 1920, it is to be presumed that a similar percentage of 200 men constituting the active force in 1900 will arrive at pension status in 1925, and that a further payroll increase of 100 men between 1900 and 1905 will result in a further increase of 50 per cent in the number of those eligible for pension in 1930. These additions superimpose one on the other, and wholly change the appearance of the curves of total annual pension payments.

Since it requires a period of at least 25 years for pensions to attain maximum proportions when only the number of persons employed at the time the pension plan is adopted is considered, and any increase in the number of employees will be followed years later by a similar increase in number of pensions, the reason is clear for the statement frequently made that *total annual pension payments increase with the number of persons employed and continue to so increase for* 50 *years or more after the growth of the business has ceased and the number of employees become constant.*

In view of this fact, it is not surprising that many pension plans instituted without sound actuarial advice have proved far more costly than was originally anticipated. Even in plans with a modest scale of benefits, payments to pensioners may easily be equivalent to 10 per cent of the current payroll, and there are recorded cases in which current pension payments have amounted to 37 per cent of current payroll.

What may happen to inadequately financed pension systems is vividly illustrated in a rather tragic incident which occurred in 1923. This occurrence was the dissolution of the pension fund of Morris & Co., packers.

FAILURE OF MORRIS & CO. PENSION SYSTEM

This fund, established in January, 1909, was of the contributory type. Officers and employees contributed 3 per cent of their salaries, the company contributing $25,000 each year until the fund reached the sum of $500,000. Participation in the fund was voluntary with respect to old employees, but compulsory with respect to new employees. In the event of dismissal, the employee was entitled to withdraw such amounts as he had contributed to the fund with 4 per cent interest, compounded semi-annually. In the event of resignation, the employee could withdraw the equivalent of his contributions, but without interest.

Pension benefits of 2½ per cent of final salary for each year of service were payable for life to officers and employees who had completed 20 years of service and who had reached the age of 55 years, and, in addition, one-half regular pension benefits were payable to the widow of a deceased pensioner until her death or remarriage. No minimum or maximum pension amounts were established.

The fund was administered by a committee of five, two of whom were appointed by the company and three of whom were elected by the employees. This committee was given the power to amend the rules governing the pension fund, but neither the committee nor a pensioner had any right to draw upon the funds of Morris & Co., all pension money being paid out of the pension fund. The company not only met the obligations cited above, but also contributed $980,000 in addition, while the president of the company personally subscribed $100,000.

In 1923, the business of Morris & Co. was sold to Armour & Co., whereupon the pension fund committee "distributed the funds, returning to contributors their contributions, with interest, and announcing that pensions would be paid for 14 months and then cease for lack of funds."

Suit was brought by 24 pensioners acting for themselves and others similarly situated. . . . After trial of the issues, the Circuit Court of Cook County, Illinois, in March, 1925, dismissed the complaint for want of equity. This judgment was later affirmed by the Court of Appeals.

EXPENSE OF ADMINISTRATION 10 PER CENT

Assuming that the actual payments to pensioners would be the same under one plan as under another, the other two factors which affect the ultimate cost of a pension system are the expense of administration and the interest return on invested funds. The rates charged by one large insurance company contemplate an administrative cost of 10 per cent of pension payments (including cost of acquisition), and it is guaranteed that this cost will not be exceeded. In case the administrative costs are less, such savings as are effected revert to the employer by virtue of the participating clause of the contract.

The other item governing costs of the pension plan is the income received from interest on invested funds, which of course varies with the type of plan used. In instances where pensions are paid as a part of the current payroll, interest has no effect upon the actual cost of the pension, as there is no investment for strictly pension purposes. Under this method, the retirement of an employee 65 years old who has completed 40 years of service and who receives a pension of $400 per year would, on the average, cost the employer slightly more than $4,800. (The life expectancy of a man at 65 years is approximately 12 years.)

In instances where the pension is purchased from an insurance company in the form of an annuity, compound interest reduces the cost. A single premium annuity bought for an employee of 65 to pay such employee $400 per year for the rest of his life costs approximately $3,800.

Setting aside $3,800 for each employee who reaches the age of 65 or paying $400 per year to such employees for the rest of their lives may well become an almost impossible burden to any employer. There is a method, however, of creating a reserve through a sinking fund which spreads the cost over a period of years and takes full advantage of compound interest, which naturally reduces the pension burden.

In the case of the employee considered above, the pension obligation could be met by setting aside $38.45 each year during the 40-year period of employment. The cash outlay in this instance is $1,538, but compound interest (at 4 per cent) operates for a period of 40 years, so that at the age of 65 a reserve has been built up which will pay the pensioner $400 per year for the rest of his life.

The ultimate cost of a pension system is lowered, however, by the effect of two factors, labor turnover and mortality. Funds accumulated for the pension of an employee who leaves the service of the company for any cause ordinarily revert to the employer, thus reducing subsequent deposits or premiums.

When a pension plan is first inaugurated, a certain excess cost is encountered in providing reserves to take care of pensions for employees who have already completed a number of years of service. This extra cost is called the accrued liability, and failure to recognize it and make proper provisions to meet it is perhaps the most frequent cause for the change or complete breakdown of pension plans after they have been in operation for some time.

How to Determine Eligibility and Amount of Pensions

Who shall be eligible for pensions under existing plans seems to be largely a matter of judgment on the part of the employer, the usual requirements being a certain length of service and a given age. Retirement ages range from 50 to 70 years, 65 being preferred. Usually there is provision for a minimum and maximum age, retirement being voluntary at the minimum age but compulsory at the maximum age. In a few instances, these limits may be varied to suit the individual needs of the employee and the company, and is effected by mutual agreements. Obviously, when the retirement age is not definitely established, the varying age of pensioners at the time of retirement is bound to affect either costs or amounts of pensions.

A normal retirement age, therefore, seems preferable, with adjustments in pension amounts made for earlier or later retirement. Some employers operating pension plans require also that new employees, to be eligible, must be hired below a fixed age. This maximum hiring age varies from 30 to 64 years, 45 being preferred. Length of service required varies from 5 to 45 years, the majority ranging from 15 to 30 years. A minimum of 20 years seems to be the most common requirement.

There seem to be no fixed ideas as to minimum and

maximum amounts of pensions. Earlier plans based pension amounts upon a percentage of the salary earned during the last few years of service, but experience has shown that accurate forecasts of what scale salaries may attain in years to come cannot be made. Since it is impossible to set aside today a definite reserve which will meet an indefinite obligation maturing years hence, modern pension plans seek a mathematically certain relationship between current deposits and future pensions.

This is accomplished by basing pensions upon employees' earnings during the entire service period or establishing a fixed pension amount for each employee. *On this basis, it is the actual reserve set aside each year that determines the amount of pension payable upon retirement.*

Employee Contributions Recommended

It would appear that a recognition of the value of employee contributions from a psychological as well as financial standpoint is being brought about. The present tendency seems to be toward the contributory type of pension plan with a minimum pension to all employees and a greater pension to employees who voluntarily subscribe to the plan. *Under a plan of this type it is imperative that the deposits of the employer and those of the employee be kept separate and also entirely divorced from the finances of the employer,* thus assuring each employee that his individual deposits will be used only for his own pension benefits, or may be withdrawn intact. Two incomes are provided to a pensioner under the contributory plan, one a "service annuity" provided by the deposits of the employer, and the other an "income annuity" provided by his own deposits.

The average life of a pensioner can be predicted by an actuary, using the normal retirement age as a base, thus making possible the establishment of an adequate reserve. Such predictions are based upon mass experience, and there is a possibility that the actual experience of a small group will not be what is expected. *The larger the group concerned the greater the probability that its experience will conform to the average.*

Labor Turnover an Uncertain Factor

It is impossible to determine the exact number of men working today who will remain in the service until they reach the pension age; therefore the ultimate effect of labor turnover on pension plan costs cannot be predicted. A satisfactory treatment of this situation is for the employer to provide a cash reserve with respect to each employee and to release the reserve when such an employee leaves the service. This is not always practical when employees with comparatively short service periods are considered, and it is therefore desirable that reserves be created for such employees as they complete a definite service period of say five years, for example. Under contributory plans any employee, regardless of his length of service, may choose to take advantage of the plan and deposit his individual contributions. Under sound accounting theory, the employer should, of course, make his deposits annually, as the liabilities are incurred, but practically, the high rate of labor turnover among new employees often makes it preferable that the beginning of the employer's deposits be deferred for several years. When this is done, the employer's deposits will be relatively greater, but the total number of transactions involved will be minimized. In other words, a contributory pension plan with a 20-year service requirement may involve contributions by the employee over the entire 20-year period; whereas the employer's deposits may be spread over the last 15 years constituting the service period.

The relationship between current pension fund deposits and ultimate pension payments is governed by the interest accumulated, and the *interest return on invested funds must therefore be maintained at or above the minimum contemplated in the plan.* Employers who operate their pension plans independently must keep the funds invested at compound interest, and safe, long-time investments, yielding a high return, are not always easily secured. It would therefore seem desirable to establish pension amounts and deposits upon a scale contemplating a moderate interest return.

The annuity sold by the largest insurance company transacting this class of business guarantees an interest return of 4 per cent. Being a mutualized institution, this interest return is supplemented by dividends.

Meeting Accrued Liability

Accrued liability refers to the amount which would have been in the pension fund had the plan been in existence since the beginning of the industry. In an entirely new industry, the accrued liability does not exist, and in an industry of very rapid or recent growth it is comparatively small. In an old industry, where there has been no large recent growth, it is comparatively large. Likewise, it is greatest where labor turnover is least. It is least where the labor turnover is large and the average period of service short.

The accrued liability in a given shop may be determined by a detailed study of each potential pensioner's salary, age, and date of employment. Should the total contingent liability be small, it may be met immediately by a cash appropriation to the pension fund for the full amount, or, if the amount is large, may probably be safely met by installments extending over a period of several years, if necessary.

When the pension fund is handled by an insurance company, the accrued liability may be met by the immediate purchase of single premium annuities, representing years of past service, for each employee. If the amount involved is large, the insurance companies usually permit funding over a period of years. If the total sum involved is excessive, some form of compromise should be effected between the ideal and the practical. In this event, serious consideration should be given to the possibilities of employee participation.

Total Ultimate Cost

The most important question in regard to a pension plan is the probable cost of operating it, an extremely difficult question to answer, as it depends on so many variable factors, which are affected by the terms of the individual plan and by the makeup of the personnel.

Assuming that the average ages of a group of employees correspond to a cross-section of all persons gainfully employed in manufacturing and mechanical industries, a normal retirement age of 65, and a pension of 1 per cent of earnings for each year of employment (which are probably fairly typical provisions), a rough guess at the cost can be made as follows:

Leaving out of consideration the accrued liability, and assuming that the plan takes full advantage of the effect of labor turnover and mortality, an annual deposit of 2 per cent to 3 per cent of the payroll should take care of the current accrual of pension liability. Of course, a rate of turnover less than normal means a higher pension cost, while a higher turnover would lower the cost.

To cover the accrued liability and provide pensions for past service, it would probably be necessary to set up a fund in the neighborhood of 20 per cent to 30 per cent of the present annual payroll. In case of an old established company with many employees well along in years and with a low rate of turnover, this liability would probably exceed the figure just given, while for contrary conditions it would perhaps be somewhat less.

The accrued liability probably need not be met in one payment, but can be safely distributed over a period of years when the business is stable.

These foregoing figures are, of course, only a rough approximation of the probable cost under average conditions. Each particular plant and each particular pension plan must be studied in detail by a competent actuary before the probable cost may be determined with any approach to accuracy.

Any employer contemplating a formal pension plan should be sure that he has a full and complete understanding of what the probable future cost will be, especially the cost of pensioning those employees whose periods of service began before the adoption of the pension plan, and of the practical ways and means of meeting these costs.

In small and medium-sized plants employers generally would probably be well advised to delegate the difficult and perplexing problems of operating a pension fund to one of the various insurance companies.

Claire Furnace Case Where It Was

Supreme Court Decision Believed to Have Nullified All the Litigation of Six and Three-quarter Years—Merits of Case Not Decided

WASHINGTON, April 25.—Tentatively the Federal Trade Commission has decided to proceed with the Claire Furnace Co. case, it is stated at the commission's offices. No action will be taken, however, until the Supreme Court of the District of Columbia receives from the Supreme Court of the United States the mandate directing dismissal of the original bill.

Upon receipt of this order, the commission then would be free to apply to the District Supreme Court to vacate the injunction granted the 22 iron and steel companies. This injunction restrained the commission from enforcing its orders requiring the companies to file with it monthly reports on the cost of production, balance sheets, and a great array of other information which they had declined to furnish. Once the injunction, which had been affirmed by the District Court of Appeals in Washington, is vacated, the mandamus proceedings which the commission originally started will be renewed.

Decision Did Not Touch Merits of Case

It is believed that if the proceedings are again instituted through mandamus, as required by the decision of the Supreme Court of the United States, the Attorney-General will sift and probably pare down considerably the mass of information sought from the companies. The decision of the Supreme Court, which did not pass upon the merits of the case, but rather dismissed it on procedural grounds, said the lower courts were not justified in issuing injunctions.

It held that the proper procedure is through a request for the Attorney-General to institute mandamus proceedings after "sifting out from the mass of inquiries issued what, in his judgment, was pertinent and lawful, before asking the court to adjudge forfeitures for failure to give the great amount of information required. . . . The wide scope and variety of the questions, answers to which are asked in these orders, show the wisdom of requiring the chief law officer of the Government to exercise a sound discretion in designating the inquiries to enforce which he shall feel justified in invoking the action of the court. . . . Until the Attorney-General acts, the defendants can not suffer, and when he does act, they can promptly answer and have full opportunity to contest the legality of any prejudicial proceeding against them."

Steel Company Victory Seen by Some

This language is accepted by some as implying a victory for the steel companies. Some who have studied the decision have gone so far as to express the opinion that when the question is properly raised the Supreme Court will decide against the validity of the order, the assumption being that the case will again go to the Supreme Court. Its importance leads to this conclusion, for it had been generally awaited as a test case whose outcome would make clear the authority of the commission to compel business and industry to supply it with information of such intimate nature as the orders attempted to obtain. For this reason the failure of the Supreme Court to pass upon the merits of the case was a disappointment. A parallel case, that of the Maynard Coal Co., is considered to have been decided in the Claire Furnace decision, for both cases traveled the same legal course.

Those who think the steel people were victorious in the decision also point to the sharp dissent of Mr. Justice McReynolds, who said the commission had exceeded its authority. "I think the decree below should be affirmed—the commission went beyond any power granted by Congress," said he. "This appeal was taken four years ago. Nearly seven years have passed since the case began, June 12, 1920. Able counsel have argued it twice before us, but none suggested that the trial court erred in failing to dismiss the bill because there was an adequate remedy at law. Under well-settled doctrine such a defense may be waived by failure promptly to advance it. . . .

"In my view it is now much too late for this court first to set up and then to maintain the defense of lack of jurisdiction in the trial court, and I cannot acquiesce in the disposition of the cause upon that unstable ground. The real issue should be met and determined."

Injunction Vacated

There is also the opinion that the decision was a victory for the commission, because it did not sustain the lower courts in making the injunction permanent, but rather left the gate open for the commission again to start proceedings, virtually leaving the case where it began.

Perhaps it is safe to say that the general view is that the decision was not a victory for either side, because it did not pass upon the merits of the case. This belief is shared in part at least at the offices of the commission itself.

How the Case Came Into Being

The Claire Furnace case was started by the commission when mandamus proceedings were instituted under the direction of Attorney-General A. Mitchell Palmer on June 10, 1920, in the District Court of the United States for the District of New Jersey against the Republic Iron & Steel Co., and in the District Court of the United States in Eastern Pennsylvania against the Bethlehem Steel Co. On June 12, two days later, the 22 iron and steel and related companies filed a bill for injunction in the Supreme Court of the District of Columbia, whose action in issuing an injunction was affirmed by the District Court of Appeals. The case was argued twice in the Supreme Court of the United States, first in 1923 and next in 1926, reargument being made at the request of the court.

The commission has made it known that, regardless of what may be the outcome of the Claire Furnace Co. decision, it will continue its policy of seeking information and reports in the conduct of its investigations. But it was significantly pointed out that the information will be asked as a matter of courtesy and not one of right. This implies plainly that the commission of today is not desirous of pressing business for information which it would either refuse to give or would yield reluctantly. It was stated that the commission has instituted a policy of cooperating with and not attempting to coerce business. Under such a policy, it has been explained, the Claire Furnace Co. decision, on its merits or otherwise, would not be important, because the commission would not resort to coercion, even if it had the power. On the other hand there is a strong sentiment that the importance of the fundamental questions involved should be taken into consideration and the issue settled definitely as a precedent for the future.

Approximately half a mile of 16-in. Steere steel pipe with welded sleeve and expansion type joints has been ordered by the Consumers Gas Co., Toronto, from the Semet-Solvay Engineering Corporation, New York. The pipe will be used to build two mains for carrying gas across the Don valley and will be supported on a new bridge 1300 ft. long, which is being built to connect Leaside and East York. The lines will be fastened to the floor beams by hanging bolts.

Foundrymen Announce Program

Technical Papers for Annual Convention in June Cover Many Fields—Several Conferences Are Features

THE tentative program for the general and technical sessions of the 1927 convention of the American Foundrymen's Association, to be held at the Edgewater Beach Hotel, Chicago, June 6 to 10, has just been made public. The details of the technical program are as follows:

June 7: 10.15 a. m. Apprentice Training.
Chairman, H. A. Frommelt, Davenport, Iowa.
"Upgrading Foundry Apprentices," by C. Howard Ross, general manager Union Malleable Iron Co., East Moline, Ill.
"Training Apprentices," by A. W. Gregg, Bucyrus Co., South Milwaukee, Wis.
Discussion of Training Problems.

June 7: 10.15 a. m. General Foundry Practice.
Chairman, J. W. Bolton, Lunkenheimer Co., Cincinnati.
"Specifications for Miscellaneous Foundry Materials," by V. A. Crosby, metallurgist, Studebaker Corporation, South Bend, Ind.
"Application of Metallurgical Principles to Foundry Practice," by J. H. Andrews, Royal Technical College, Glasgow, Scotland; exchange paper of Institute of British Foundrymen.
"Plumbago Blackings as Applied to Foundry Work," by A. N. Ogden, Western Electric Co., Chicago.

June 7: 2 p. m. Foundry Costs.
Chairman, A. E. Hageboeck, Frank Foundries Corporation, Moline, Ill.

June 7: 2 p. m. A Conference—Qualities of Pig Iron for Casting Purposes.
"Chairman, R. H. Sweetser, assistant to vice-president, American Rolling Mill Co., Columbus.
Discussion Leaders:
R. S. MacPherran, Allis-Chalmers Mfg. Co., Milwaukee.
Dr. Richard Moldenke, Watchung, N. J.
David McLain, Milwaukee.
J. T. MacKenzie, American Cast Iron Pipe Co., Birmingham.
J. W. Bolton, Lunkenheimer Co., Cincinnati.
E. J. Lowry, Hickman-Williams Co., New York.

June 8: 10 a. m. Foundry Sand Control.
Chairman, Benjamin D. Fuller, Cleveland.
"Some Practical Results of Sand Control," by M. Kuniansky, Lynchburg Foundry Co., Lynchburg, Va.
"Report of Committee on Grading Foundry Sand," by A. A. Grubb, Ohio Brass Co., Mansfield, Ohio, Chairman.
"Report of Committee on Testing Foundry Sands," by H. Ries, Cornell University, Ithaca, N. Y., Chairman.
"Effect of Moisture Absorption on the Properties of Cores," by H. L. Campbell, Ann Arbor, Mich.

June 8: 12.15 p. m. A Conference on Brass Foundry Problems.
Chairman, N. K. B. Patch, Lumen Bearing Co., Buffalo.
The Round Table conference will follow a luncheon gathering of those interested in brass founding.

June 8: 1.30 p. m. Cast Iron Metallurgy.
Chairman, R. F. Harrington, Hunt-Spiller Mfg. Corporation, Boston.
"The Coulibility Bar," by C. Curry, Ardennes, France. Exchange paper of the French Foundry Technical Association.
"Some Graphite Formations in Cast Iron," by J. A. Bolton, Lunkenheimer Co., Cincinnati.
"Fatigue of Cast Iron," by H. F. Moore and S. W. Lyon, University of Illinois, Urbana, Ill.
"The Effect of Nickel and Chromium in Cast Iron," by R. S. Poister, Electrometallurgical Sales Corporation, New York.

June 8: 1.30 p. m. Malleable Foundry Sand Control.
Chairman, L. C. Wilson, Federal Malleable Co., Milwaukee.
Discussion Leaders:
H. B. Hanley, Whitehead Brothers Co., Rochester, N. Y.
H. W. Dietert, United States Radiator Co., Detroit.
"Synthetic Sands in the Malleable Foundry," by F. C. Scheiber, General Electric Co., Erie, Pa.

June 8: 1.30 p. m. Steel Founding.
Chairman, R. A. Bull, Electric Steel Founders' Research Group, Chicago.
"A Development in Ovens for Mold Drying," by J. M. Sampson and G. H. Wright, General Electric Co., Schenectady, N. Y.
"Characteristics of Some Steel Molding and Core Materials," by E. R. Young, Detroit Steel Casting Co., Detroit.
Report of A. F. A. Committee on Steel Castings, by A. H. Jameson, Deemer Steel Castings Co., New Castle, Dela., Chairman.
Report of A. F. A. Representative on Committee on Investigation of Effect of Sulphur and Phosphorus in Steel, by R. A. Bull, Chicago.
Report of Committee on Heat Treatment of Ferrous Metals, by A. H. Lorenz, Bucyrus Co., Milwaukee, Chairman.

June 9: 10 a. m. Gray Iron Shop Problems.
Chairman, L. L. Anthes, Anthes Foundry Co., Toronto, Canada.
"Analysis of Four Hundred Tons of Defective Castings," by J. M. Haley, Crompton & Knowles Loom Works, Worcester, Mass.
"Study of Chapleting," by M. Variet, Sclession, Belgium; exchange paper of Belgian Foundry Technical Association.
"Temperature Measurements of Cupola Iron," by H. W. Dietert, United States Radiator Co., Detroit.

June 9: 10 a. m. Non-Ferrous Founding.
Chairman, N. K. B. Patch, Lumen Bearing Co., Buffalo.
"Reduction of Molding Losses," by R. A. Greene, Ohio Brass Co., Mansfield, Ohio.
"Aluminum Bronze Castings," by W. M. Corse, Aluminum Bronze Manufacturers' Institute, Washington.
"Gating Brass Castings,"—A conference on various methods of gating brass castings.

June 9: 10 a. m. Malleable Foundry Problems.
Chairman, L. C. Wilson, Federal Malleable Co., Milwaukee.

Arrangements have been made for registration on June 6, as well as some plant visitations and committee meetings, with a conference of instructors of foundry practice for 6.30 p. m. On the morning of each day breakfast gatherings have been arranged at 8 a. m. for promoting acquaintanceship, a new experiment. On the evening of June 7 a program of general entertainment is scheduled, with the banquet arranged for 6.30 p. m. June 8. On the afternoon of June 9 a boat trip on Lake Michigan will be a feature, with other plant visitations scheduled for June 10.

Questionnaire to Be a Feature of Refractories Convention

An interesting feature of the program for the annual spring meeting of the American Refractories Institute to be held at the Hotel Traymore, Atlantic City, May 18 and 19, is the use of a questionnaire method to encourage discussion of various phases of refractories industry activities. It is planned to have one or two men, recognized as authorities, to start the discussion, which then will become general.

M. C. Booze, vice-president Charles Taylor Sons Co., Cincinnati, is scheduled to speak, and a paper covering the investigations of the Refractories Fellowship at the Mellon Institute of Industrial Research, Pittsburgh, on the control of the grain size of clay refractories is expected to be received with interest.

The meeting is open to all interested either in the manufacture or use of refractories, and Miss Dorothy A. Texter, secretary, 2202 Oliver Building, Pittsburgh, is prepared to make reservations and other arrangements for those wishing to attend. The program follows:

"Research in the Refractories Industries," by M. C. Booze, vice-president Charles Taylor Sons Co., Cincinnati.

"Properties of Clay Refractories Resulting from the Control of Grain Size of the Flint Clay," from the Refractories Fellowship, Mellon Institute.

"Some Characteristics of Fire Clays and Brick Made From Them," by R. F. Geller, United States Bureau of Standards, Washington.

"The Effect of the Use of Purite Upon Refractories," by G. S. Evans, Mathieson Alkali Works, Chicago.

Discussion of the following questions:

What does the industry need in the way of technical development?

Is the ceramic engineer, as at present being turned out by the departments of ceramic engineering, satisfactorily serving the refractories industry? In what respect is training lacking?

What is the proper type of machine for grinding raw plastic clay to 60-mesh and finer?

What are some practical methods for preventing the coarse particles of clay from separating from the fine clay in storage bins? To what extent does this separation affect the properties of the finished brick?

What are the benefits to be derived from using hot water in the tempering of clay mix instead of cold water?

What is the best type of dust collector for dry pans?

What is the cause of convex surfaces on hand-molded shapes and how may same be prevented?

Humidity drying of tile shapes of large size vs. hot floors, including initial costs of both installations,

operating costs and time to dry. What of spoilage?

What might be considered good average and medium amount of coal to burn M 9-in. equivalents.

Rectangular kilns — High heat, intermediate, moderate, low duty brick.
Round kilns
Tunnel.

At what particular stage or stages in burning does "kiln marking" occur and how may it best be controlled?

Is there any material difference in cost between dry pressed and stiff mud fire brick?

Why are so many difficult shapes required in refractories?

What is the cause of surface checking or crazing of refractories and how can it be overcome?

What is the best refractory for use with coals high in ash with 2 to 4 per cent iron content (Illinois coal)?

What types of refractories are best suited for puddling furnaces?

A test for determining the resistance of first quality clay brick to the action of abrasion.

The accurate determination of reversible coefficient of expansion of fire brick at all temperatures up to 2400 deg. Fahr. and the practical value of having and using the result in designing boiler furnaces.

Spalling of fire brick in boiler furnaces. How many different kinds of spalling are there, and how can one distinguish between the various kinds?

Reports on mullite brick under severe service, including reports on failures.

Determination of mullite content.

Plastic refractories.

Uniform cost system; credit bureau; production and sales statistics.

Preventing Accidents in Metal Industries

Pittsburgh Safety Council Seeks Reasons for Infection from Oils, Electrical Accidents, Mishaps in Crane Operation and Foundry Practice

STANDING out among the discussions at the fourth annual conference of the Western Pennsylvania Safety Council, held at the Chamber of Commerce of Pittsburgh on April 14, was a paper on "Infection from Lubricants," by George W. Pressell, chief research engineer E. F. Houghton & Co., Philadelphia, but read in Mr. Pressell's absence by F. L. McNamara. It was the conclusion of the author that skin troubles are not due to the oils so much as to the individual who comes in contact with them, and he asserted that numerous investigations have disclosed no harmful bacteria in oils as they are received from the refineries. He said that, even though cutting oils had the power of penetration and small particles of metal in the oil might work their way into the skin, it was the condition of the machine operator that determined whether infection would develop. Cleanliness on the part of the machine operators was urged, not only of the hands and bodies, but also in clothing. The author suggested greater care of oil reservoirs, stating that their contamination not infrequently was due to the use of the tanks as receptacles for garbage and refuse. He also advocated sterilizing the oil with disinfectants and filtering the small chips of metal from it.

Dr. T. A. Little, General Electric Co., Erie, Pa., in discussing the paper, also stressed the need of cleanliness on the part of the men. He pointed out that they were not content with etherial soap but were prone to use solvents, which opened up the pores and made them excellent lodging places for germs. He said wiping rags were not cleaned often enough and were a source of infection, and urged prompt attention to minor injuries.

Eliminating Electrical Hazards

R. S. Shoemaker, superintendent of maintenance, American Rolling Mill Co., Middletown, Ohio, in his talk on "Electrical Hazards in the Iron and Steel Industry," said that while such hazards had been greatly reduced in recent years, they were still numerous. He thought much might be done to prevent shocks and burns from ungrounded wires, from accidentally grounded frames and in the handling of portable tools through insulation failures. Repairing still was done when the current is on, he observed, and warned against static, a condition produced when the current is off but not short-circuited, and against premature starting. A. Heckman, Westinghouse Electric & Mfg. Co., East Pittsburgh, suggested identification of wires as a means to avoid explosions in manholes. He said that metal tags offered a better means than the use of colored insulation on the score that the colors would fade. False fuses, such as nails and pennies also were cited as a source of danger.

Accidents in Crane Operation

"Causes of Crane Accidents," the human phases of which were presented by Frank Rowe, safety director, Wheeling Steel Corporation, Portsmouth, Ohio, and the mechanical side by M. C. Goodspeed, safety engineer, General Electric Co., and discussed by B. Hantman, Westinghouse Electric & Mfg. Co., East Pittsburgh, was another interesting topic. Mr. Rowe cited the following as human causes contributing to crane accidents: Failure of operators to observe signals; use of poor wire rope slings; careless placing of hands and feet in adjusting piling blocks before dropping the lift; failure of the operator and floorman to see that the trolley is directly over the load; improper signals by the floorman; men standing too close to and between lifts; improper piling of material and inaccurate use and spacing of piling blocks; infrequent inspection of limit switches, and improper hooking of the lift with resultant spilling. He urged as a remedy a regular course of instruction, which should be so constant that the men could not fail to acquire safety as a habit.

Mr. Goodspeed expressed difficulty in discussing the mechanical reasons for crane accidents without encroaching on the human causes, because so many alleged mechanical errors when investigated were found due to human failure. He stressed the need of standardized cage equipment, which would make it possible to train operators to run any crane in a plant and guard against accidents caused by different locations of controls in various cranes. Limit switches, he said, should not be of a type that depended for operation on a fixed number of revolutions of the drum. Other means of accident prevention suggested were regular inspections by men outside the crane group; enclosed switches in the cages; close attention to worn parts, and a checkup of maintenance men as well as of crane operators.

Mr. Hantman pointed out the dangers from overloading chain lifts and loading on the point of the hooks. He objected to the use of the limit switch as a controller and said one rail of the crane runways should be left loose if derailment were not to have serious results.

Preventing Mishaps in the Foundry

F. G. Bennett, safety director Buckeye Steel Castings Co., Columbus, Ohio, discussing "Foundry Hazards," pointed out the necessity of orderliness in the foundry, including even floors, good ventilation and lighting, careful handling of materials and the proper protection of the men in exposed jobs, as ways to achieve greater safety in the foundry, notably in the smaller shop where hand-pouring of hot metals is employed. D. J. Evans, superintendent Union Steel Castings Co., Pittsburgh, told of organized safety efforts at his plant and the need of pressure to get the men to follow instructions. Mechanical appliances as supplemented by human endeavor and thinking for safety, was the gist of a paper by L. W. Mesta, general superintendent Mesta Machine Co., Pittsburgh, read by E. F. Harris, superintendent of employment and welfare at the Mesta plant.

The session was concluded by a series of stories of

unusual accidents by J. A. Northwood, Bethlehem Steel Co., Johnstown, Pa.; J. W. Benner, Homestead works, Carnegie Steel Co.; W. S. Dittmer, Westinghouse Electric & Mfg. Co., East Pittsburgh; A. C. Gibson, who recounted accidents at the works of Spang, Chalfant & Co., Pittsburgh; E. F. Hollibaugh, Pittsburgh Railways Co., and George McLain, Jones & Laughlin Steel Corporation.

"Physical Examination—On Application and Periodic," was the subject of Dr. A. W. Colcord, Carnegie Steel Co., Clairton, Pa., following the dinner in the evening. Earl M. Craig, vice president Freedom Oil Co., Freedom, Pa., spoke on "Gasoline—Its Uses and Abuses," and "Fire Hazards" was the topic of T. Z. Franklin, manager special hazards department, Automobile Insurance Co., Hartford, Conn.

Teaching Engineering Teachers

Cooperative Summer School Arrangement—"Mechanics" Chosen as First Topic—150 Colleges Join in Plan

TO advance the standards of technical education, 150 engineering colleges have united to establish two summer schools for the training of teachers. The announcement is made by Engineering Foundation, New York, the research agency of the national societies of civil, mining, mechanical and electrical engineers.

Two schools will be in session simultaneously, beginning Wednesday, July 6. One will be at Cornell University, under the direction of Dr. Dexter S. Kimball, dean of the College of Engineering, and president of the American Engineering Council. The other will be at the University of Wisconsin, Prof. E. R. Maurer, head of the Department of Mechanics, in charge.

General supervision of the undertaking is in charge of the Board of Investigation and Coordination of the Society for the Promotion of Engineering Education, under the chairmanship of Prof. Charles F. Scott of the Department of Electrical Engineering, Yale University. Admissions are in charge of H. P. Hammond, Engineering Societies Building, 29 West Thirty-ninth Street, New York.

Matter Has Been Carefully Canvassed

The summer schools are an outgrowth of the extensive study of engineering education which has been conducted for the past three years by this society under the direction of W. E. Wickenden, director, and H. P. Hammond, associate professor, both of New York. Practical applications of the results of this study, it is said, are now being made by more than 100 American engineering colleges under the auspices of the society, and of the national engineering bodies known as the four founder societies. Funds to conduct the schools have been appropriated by the Carnegie Corporation, which previously provided $118,000 to carry out the three-year study.

"The purpose of the school," said Professor Scott, "is to develop the abilities of the teachers, both in the art of teaching and in the command of subject matter in the basic courses of the engineering curriculum. The project is distinctive in that it is a joint undertaking of all of the 150 engineering colleges of the country, through the agency of the Society for the Promotion of Engineering Education, in which the institutions and members of the faculties hold membership. The schools, therefore, represent a departure from current educational custom, and promise to furnish a precedent in the training of teachers for distinctly professional fields of education.

Specific Topic Chosen for Intensive Work

"To make the work of the schools concrete and definite during the first year, a particular subject of the curriculum has been chosen as the center around which the discussion of teaching methods will develop. The subject is 'Mechanics,' which is basic to all branches of engineering and is included in all engineering curricula.

"The staffs of the schools will be selected from among the foremost teachers of mechanics and teachers of engineering in the country, from the engineering and research staffs of industries and from the faculties of departments of education of the universities. The teachers who will attend the schools as students will be chosen from among the more promising younger members of the engineering faculties. Only a nominal tuition charge will be made. The schools will convene on July 6, and continue for three weeks."

Morning sessions will be devoted to formal lectures, demonstration lectures and laboratory exercises. The afternoon sessions will be devoted to seminars, which will be led by the teachers who presented topics during the morning. Evening sessions will be devoted to lectures on general topics and to recreation.

Practical Heat-Treating Problems to Be Studied at Educational Conference

A two-day elucational program dealing with practical problems in heat-treating has been arranged by the engineering extension department, Purdue University, Lafayette, Ind., for May 26 and 27. This is in response to requests made upon the university for an educational conference dealing with this particular subject. The program will be given over to the consideration of such problems which are found in every manufacturing plant in the State, and speakers of national reputation are accepting assignments on the program. Provision is being made for practical demonstrations on the steel treating of small tubes and machine parts by experts on regular equipment belonging to the university and on special apparatus set up for the conference. Oil, gas and electric equipment will be exhibited. Details of the tentative program are as follows:

Thursday, May 26: 9 a.m.—Heat-treating demonstrations and Inspection trips. 1:30 p.m.—Testing and identifying steels; Spark test demonstration; Annealing and its importance in steel treating.

Friday, May 27, 8 a.m.—Heat-treating demonstrations; Critical temperatures of steel (demonstration); Methods of heat treatment; Carbonizing. 1 p.m.—Tools and their heat treatment; Heat treating of machine parts; Quenching.

Convention Attendance Contest Planned for Chicago Meeting

The board of directors of the American Foundrymen's Association announces a convention attendance contest. Points will be figured on mileage traveled one way. For instance, the distance from Detroit to Chicago is 273 miles; the total mileage for 33 members would be 9009 miles. The distance from Boston to Chicago is 1021 miles; the total mileage for 9 members would be 9189 miles, giving Boston a margin of 180 points.

All associations of foundrymen not restricted to classes whose objects are similar to those of the A. F. A. and who hold regular stated meetings open to all interested persons are eligible to compete. Entry cards will be furnished by A. F. A. and must be attested to by an official of the association of which the contestant is a member. For complete information address the secretary of the American Foundrymen's Association, 140 South Dearborn Street, Chicago.

Exports and Imports Both Higher

Incoming Iron and Steel Lowest (Except in February) Since November, 1924 — Pig Iron 7492 Tons in March Against 54,825 Tons Last Year

WASHINGTON, April 25.—Exports of iron and steel products increased to 171,094 gross tons in March, against 166,128 tons in February, and imports rose to 61,872 tons in March, compared with 49,460 tons in February. Based on daily shipments, exports in March declined to 5519 tons compared with 5933 tons in February, while daily imports in March increased to 1995 tons as against 1766 tons in February. Exports in March, 1926, totaled 169,428 tons and during the nine months ended March, 1927, and March, 1926, they aggregated 1,698,750 tons and 1,421,487 tons, respectively. Imports in March of last year were 93,107 tons and for the nine months ended March of the present and of last year they totaled 668,817 tons and 740,199 tons, respectively.

The largest gain in exports over February was in scrap, with a total of 15,416 tons for March and 7693 tons for the earlier month. Increases were made also in such items as semi-finished steel, plates and galvanized sheets, but losses were registered in steel bars, black steel and iron sheets, tin plate, steel rails and welded pipe, the drop in the two latter products being heavy. It is believed that the unfavorable export movement in March reflected the active reentry of Great Britain into the world's markets.

Of the exports in March, 73,980 tons went to Canada, with Japan ranking as the second largest market for that month, taking 21,941 tons.

With plate exports amounting to 10,027 tons in March, Canada took 9143 tons, leading as the destination of shipment of this as well as a number of other products, including galvanized sheets, barbed wire, plain and galvanized wire, plain heavy structural material, and steel bars. Japan was the most important market in March for black welded pipe, black steel sheets, steel rails and tin plate.

Venezuela was the largest foreign market for casing and oil line pipe in March, taking 1663 tons out of a total of 7183 tons. India took 994 tons; the Dutch East Indies, 1132 tons; Persia, 679 tons, and Mexico, 489 tons. Of the 4714 tons of black welded pipe exported in March, Japan took 805 tons; the United King-

Imports of Iron and Steel in Gross Tons

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
Calendar year 1922..	714,224	383,445	109,084	374,451
Calendar year 1923..	734,599	367,820	100,120	206,048
Calendar year 1924..	556,814	209,109	59,910	255,157
Calendar year 1925..	943,240	441,425	80,269	265,688
January, 1926	79,067	48,423	3,105	37,421
February	100,273	59,122	5,194	27,239
March	93,107	54,825	4,606	27,391
April	107,636	54,359	6,949	59,666
May	108,731	57,211	3,002	21,633
June	124,215	43,106	5,277	31,315
Fiscal year 1926.....	1,080,781	528,305	64,106	388,407
July	82,411	32,206	1,702	34,133
August	91,578	26,538	4,611	41,075
September	85,484	17,508	2,525	18,167
October	81,830	18,847	4,879	13,331
November	81,259	17,560	6,057	20,091
December	75,559	14,783	8,752	26,971
Calendar year 1926..	1,111,090	445,602	56,809	354,223
January, 1927	63,452	9,326	2,517	50,605
February	49,460	4,417	2,968	21,585
March	61,872	7,492	4,611	22,917
Nine months	668,817	148,677	38,815	248,825

*Not included in "total imports." These figures are for manganese contents of the ore.

Exports of Iron and Steel in Gross Tons

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914...	2,406,218	221,582	145,720
*Average, 1915 to 1918...	5,295,333	438,462	1,468,020
*Average, 1919 to 1923...	3,078,724	123,827	149,218
Calendar year 1924.....	1,805,073	41,478	114,417
Calendar year 1925.....	1,762,571	32,674	108,681
January, 1926	174,585	1,663	4,388
February	157,187	1,478	5,615
March	169,438	1,489	6,050
April	194,449	2,010	7,167
May	173,418	1,107	9,880
June	159,506	1,369	5,714
Fiscal year 1926.....	1,948,860	30,587	103,271
July	194,717	2,595	14,558
August	171,588	2,744	14,437
September	182,071	2,173	12,569
October	172,070	2,205	12,983
November	219,830	3,724	17,528
December	198,189	2,651	10,412
Calendar year 1926.....	2,167,048	25,208	120,602
January, 1927	215,235	3,734	5,531
February	166,129	2,466	3,935
March	171,094	3,647	7,782
Nine months	1,698,750	25,900	98,933

*Calendar years.

Sources of American Imports of Iron Ore

(In Gross Tons)

	March		Nine Months Ended March	
	1927	1926	1927	1926
Canada	540	298	13,503	5,650
Cuba	33,000	29,700	409,500	375,012
Chile	91,000	113,100	980,600	935,000
Spain	3,723	22,311	17,116	90,688
Sweden	14,143	.....	82,808	105,744
French Africa	54,090	12,611	263,379	97,286
Other countries	959	6,102	232,434	65,022
Total	197,455	184,122	1,999,340	1,674,402

United States Imports of Pig Iron by Countries of Shipment

	March		February	
	1927	1926	1927	1926
United Kingdom	1,250	12,250	.....	15,826
British India	2,763	14,558	1,565	9,990
Germany	690	13,900	634	16,869
Netherlands	2,585	9,231	.....	6,670
Canada	56	559	248	593
France	.....	2,150	.....	7,691
Belgium	100	1,733	.....	1,230
Norway	.....	.....	1,945	.....
All others	48	444	25	253
Total	7,492	54,825	4,417	59,122

Imports of Iron and Steel Products Into the United States by Countries of Origin

(In Gross Tons)

From:	March, 1927	February, 1927	March, 1926
Austria	91	18	98
Belgium	20,408	15,321	14,751
Czechoslovakia	44	405	33
France	10,250	8,654	6,813
Germany	10,118	9,631	17,695
Italy	199	51	38
Netherlands	2,954	360	14,795
Norway	994	3,530	1,910
Sweden	1,898	1,466	2,359
United Kingdom	4,096	4,512	14,424
Other Europe	133	.....	458
Europe	*51,185*	*43,948*	*73,374*
Canada	5,695	3,859	4,947
Mexico	32	73	87
Cuba	2,188	.....	.....
British India	2,763	1,565	14,558
Japan	2	10	.....
All others	7	5	141
Total	61,872	49,460	93,107

dom, 681 tons; Mexico, 459 tons; Canada, 426 tons, and Argentina, 405 tons. Exports of galvanized pipe in March totaled 2258 tons. The United Kingdom took 445 tons; Japan, 295 tons; Brazil, 209 tons, and Cuba, 204 tons.

The heaviest gains in imports during March over February were made in pig iron, steel bars and structural shapes. Belgium led as the source of the greatest incoming shipments, providing 20,408 tons, while France, with 10,250 tons, came second and Germany was a close third with 10,118 tons.

Of the 22,917 tons of manganese ore concentrates imported in March, 7145 tons came from Soviet Russia; 6865 tons from British West Africa; 5875 tons from Brazil, and 3030 tons from British India. British India was the leading source of pig iron imports, providing 2763 tons of the 7492 tons imported. The Netherlands, with 2585 tons, was a close second.

The United Kingdom provided 1544 tons of the 3339 tons of ferromanganese imported in March, while 1084 tons came from Canada. Of the 10,999 tons of steel bars imported in March, 6884 tons came from Belgium, 1754 tons from France and 1023 tons from Germany. Belgium was the source of 9717 tons of the 15,079 tons of structural shapes imported in March, while 3343 tons came from Germany and 1936 tons from France. France was credited with 4700 tons of the 6759 tons of cast iron pipe imported in March, while 1500 tons was credited to Belgium and 559 tons to Germany.

Exports of Iron and Steel From the United States

(In Gross Tons)

	March		Nine Months Ended March		Calendar Year Through March	
	1927	1926	1927	1926	1927	1926
Pig iron	3,647	1,489	25,900	26,101	9,808	4,630
Ferromanganese	13	6	520	1,584	107	168
Scrap	15,416	10,326	69,276	62,969	26,844	23,493
Pig iron, ferroalloys and scrap	*19,076*	*11,821*	*95,696*	*90,654*	*36,759*	*28,291*
Ingots, blooms, billets, sheet bar, skelp	6,332	3,239	83,877	66,742	12,096	10,546
Wire rods	1,450	2,811	15,056	13,768	5,152	5,507
Semi-finished steel	*7,782*	*6,050*	*98,933*	*80,510*	*17,248*	*16,053*
Steel bars	9,115	13,622	101,208	91,985	31,504	35,807
Alloy steel bars	533	751	3,766	2,844	1,395	1,457
Iron bars	581	280	4,390	2,605	1,367	775
Plates, iron and steel	10,027	13,250	99,353	83,252	29,347	32,629
Sheets, galvanized	13,428	15,751	134,652	116,542	44,359	44,986
Sheets, black steel	15,405	14,203	137,543	102,360	48,619	44,539
Sheets, black iron	732	2,282	13,117	15,193	4,752	6,516
Hoops, bands, strip steel	5,402	6,173	34,665	35,410	13,552	14,258
Tin plate; terne plate	26,817	15,500	249,903	133,984	97,467	50,378
Structural shapes, plain material	8,976	13,408	106,348	93,812	25,146	32,740
Structural material, fabricated	5,459	7,639	49,390	65,814	15,183	24,752
Steel rails	13,701	7,113	172,780	105,525	56,211	29,429
Rail fastenings, switches, frogs, etc	1,856	2,851	28,733	30,820	7,135	12,129
Boiler tubes, welded pipe and fittings	16,489	20,278	237,757	201,717	80,284	71,666
Plain wire	2,663	3,813	19,042	26,831	7,175	10,370
Barbed wire and woven wire fencing	3,463	4,905	27,771	49,232	7,871	15,298
Wire cloth and screening	201	110	1,559	1,481	583	441
Wire rope	290	507	3,262	3,391	1,103	1,340
Wire nails	571	1,148	7,300	8,678	1,745	2,998
Other nails and tacks	592	796	4,921	6,809	1,906	2,207
Horseshoes	19	41	404	567	71	195
Bolts, nuts, rivets and washers, except track	848	1,106	8,845	11,910	2,696	3,370
Rolled and finished steel	*137,168*	*145,527*	*1,446,709*	*1,190,762*	*479,471*	*438,280*
Cast iron pipe and fittings	1,649	1,498	21,846	23,304	6,734	5,792
Car wheels and axles	1,071	760	10,979	12,829	2,867	4,232
Iron castings	1,606	745	7,749	7,753	3,389	1,905
Steel castings	729	1,208	4,317	3,795	1,411	2,295
Forgings	585	357	2,399	1,788	1,264	779
Castings and forgings	*5,640*	*4,568*	*47,290*	*49,469*	*15,665*	*15,093*
All other	1,428	1,462	10,122	10,092	3,314	3,600
Total	171,094	169,428	1,698,750	1,421,487	552,457	501,227

Imports of Iron and Steel Into the United States

(In Gross Tons)

	March		Nine Months Ended March		Calendar Year Through March	
	1927	1926	1927	1926	1927	1926
Pig iron	7,492	54,825	148,677	373,629	21,235	162,370
Ferromanganese*	3,339	4,141	27,289	45,756	6,596	11,904
Ferrosilicon†	1,272	665	10,974	3,122	3,141	1,349
Ferrochrome‡	.....	.....	552	.....	359	201
Scrap	5,074	2,523	70,479	67,208	15,680	17,601
Pig iron, ferroalloys and scrap	*17,177*	*62,154*	*257,971*	*489,715*	*47,011*	*193,425*
Steel ingots, blooms, billets and slabs	1,551	1,942	15,812	16,388	4,035	7,030
Iron blooms, slabs, etc	.....	.....	306	779	.....	29
Wire rods	1,466	576	9,092	6,244	3,907	2,661
Semi-finished steel	*3,017*	*2,518*	*25,210*	*23,411*	*7,942*	*9,720*
Rails and splice bars	1,031	3,930	31,168	20,065	4,885	6,403
Structural shapes	15,079	5,627	110,014	50,885	36,736	15,966
Boiler and other plates	166	532	2,709	1,685	840	983
Sheets and saw plates	680	147	10,784	2,769	3,426	1,202
Steel bars	10,999	8,468	72,028	50,165	22,987	19,669
Bar iron	441	527	3,788	5,381	1,306	1,495
Hoops, bands and cotton ties	1,317	1,592	24,570	8,286	7,047	3,470
Tubular products (wrought)	3,336	2,864	31,091	26,367	11,543	6,342
Nails, tacks, staples	209	275	4,694	2,784	1,256	501
Tin plate	20	28	280	309	62	52
Bolts, nuts, rivets and washers	14	72	194	191	73	137
Round iron and steel wire	233	367	3,174	3,142	823	1,006
Barbed wire	584	267	2,790	5,545	1,882	1,713
Flat wire; strip steel	252	272	2,594	1,841	661	729
Steel telegraph and telephone wire	.....	82	1,070	215	24	82
Wire rope and strand	245	278	1,870	1,121	564	438
Other wire	66	141	542	885	105	478
Wire cloth and screening	.....	50	281	296	.....	.....
Rolled and finished steel†	*34,672*	*25,519*	*303,641*	*181,932*	*94,220*	*60,665*
Cast iron pipe	6,759	2,718	79,741	43,128	24,669	8,167
Castings and forgings	247	198	2,254	2,013	885	726
Total	61,872	93,107	668,817	740,199	174,727	272,703
Manganese ore*	22,917	27,391	248,825	275,793	95,107	92,628
Iron ore	197,455	184,122	1,999,340	1,674,402	685,839	546,626
Magnesite (dead burned)	8,220	3,511	35,595	44,405	15,136	27,752

*Manganese content only. Shipments of ore from Cuba, which are stated in gross weight, amounted to 170 tons in March, 1927.
†Silicon content.
‡Chromium content.

Stretcher Used for Body Panels

Over 7000 Panels Stretched a Month in Chicago Automotive Plant—Economies Claimed for Process

SIMPLICITY and flexibility of operation, low initial cost, a minimum expense for dies and a saving of floor space are features of a process used by the Yellow Truck & Coach Mfg. Co. at its Chicago plant in the manufacture of automobile body panels. The equipment used for this purpose is known as the Artz hydraulic stretching machine, which is licensed under the patents of J. D. Artz, Dayton, Ohio.

The stretching machine consists of a movable table, which stands about 15 in. above the floor. The table is mounted on a ram that is actuated in a 12-in. high-pressure cylinder. Located on each side of the table is a gripper, which is adjustable in the horizontal plane so that the gripping of the sheet is always in the same vertical plane with the side of the die. The gripper jaws are opened and closed by a hand-operated lever, the closing action taking place when the lever handle drops to the low position by its own weight. The edges of a sheet that are to be held by the grippers are first turned back so that a sure bite will be obtained.

Fig. 1 shows a cowl sheet that has been formed or stretched over a cast iron die. The various parts of the equipment are indicated by letters. *A* is a 3-hp. motor, which drives, through inclosed gears *B*, a three-cylinder pump *C*. The pistons in this pump are ⅝ in. in diameter. A pressure gage is indicated at *D*, and *E* is a by-pass valve by means of which the pressure is relieved when lowering the table. A motor-starter switch is shown at *F*. A movable table *I* is located between the grippers, one of which is shown at *H*. The gripper lever *K* is in its down position and channel tracks are indicated at *G*.

The material to be formed is fastened in the side grippers and is allowed to hang loosely over the form. The pump is then started until the slack is taken out of the sheet, and the rear grippers *L* are applied to hold the sheet firmly in place. The bottom trim line as shown at *M*, and *N* and *O* indicate the front and the rear upper trim lines respectively. The bead line on the side of the cowl is located from the gage *P*. These markings are important, because the trim marks and beading must be accurately placed and hence they are marked from the original form.

Fig. 2 shows the first operation on a one-piece back panel that extends from door to door. The form is made of hard maple with cast iron inlays at the cor-

(Above) A Wooden Pressure Pad Is Hinged to the Form That Is Used for the Production of Back Panels

(At Left) A Cowl Sheet Is Shown Stretched Over a Form, Marked and Ready to Be Removed from the Machine

ners. In order to eliminate the formation of wrinkles in the final product a pressure pad, also made of wood and hinged to the form, is clamped over the sheet after the slack has been taken out by the upward movement of the table and form.

Some idea of the capacity of this machine is indicated by the fact that over 7000 panels have been stretched in a month at the "Yellow" plant.

Double-Spindle Machine for Grinding Both Sides of Work Simultaneously

The grinding of two opposite parallel surfaces is the function to the double-spindle grinding machine here shown. The machine, built by the Badger Tool Co., Beloit, Wis., carries two 24-in. diameter cylinder wheels mounted in chucks, each wheel being driven by a 20-hp. motor connected to the spindles through flexible couplings.

The work table, on which suitable fixtures are mounted, is reciprocated between the grinding wheels by means of a hydraulic mechanism. Through the use of automatically-operated cams and valves, the table travel can be varied in a simple manner. The grinding wheel heads are arranged to open and close automatically in proper relation to the cross-travel of the work table, and on long cuts gradual in-feed of the heads is provided. Micrometer stop screws are furnished for each head so that sizes may be duplicated on repetition work.

A feature stressed by the maker of the machine is the spindle and head construction. The spindle itself is a one-piece forging, finish turned and ground all over. Its largest diameter is 4½ in. The front or inner end of the spindle is carried on tapered bronze bearings and the rear or outer bearing carries a tapered sleeve, keyed and adjustably locked to the spindle. This sleeve is of the same size as the inner end of spindle and also revolves in a tapered bronze bearing. End thrust is taken on a hardened and ground steel thrust collar, bearing against a wide flange on inner end of the bronze bearing bushing. Adjustable collars permit of taking up end play. The spindle flanges to which the cylinder wheel chucks are attached are 11 in. diameter and 2 in. thick.

Another feature of the head construction is the self-contained lubricating system incorporated. In addition to embodying the bearing housings, the head casting also serves as an oil reservoir. A small pump is attached to the bottom of this casting about midway between the bearing ends. This pump is submerged in oil and is driven by a gear engaging with a pinion cut into the central portion of the spindle. The oil is pumped up to the distributing compartment, through strainers and glass sight gage in front and thence through copper leads to each radial and thrust bearing. The ends of both bearings are sealed to exclude grit and prevent oil leakage. New oil put into the head passes through a strainer attached to the under side of the cover plate, then passes through a second and finer screen between the pump and where it is directed into the bearings.

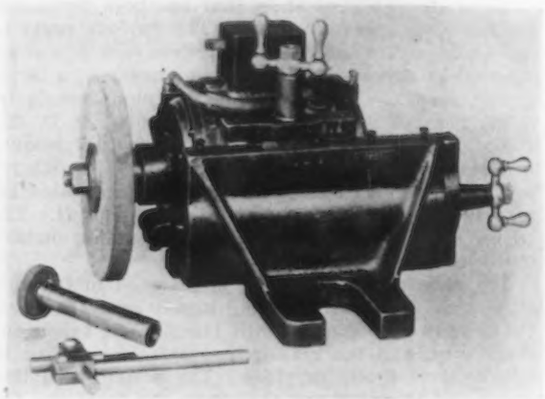
Centralized lubrication system for other bearings is also provided. There are three pumps and plungers, one near each end and one at about the center of the machine. A single push on the plunger serves to lubricate 14 different moving bearings, a total of 56 bearings being thus lubricated.

The machine is designated as the No. 224. In addition to the two 20-hp. motors for the main spindles, it carries 5-hp. motor for operating the hydraulic pump, camshaft and wet grinding system. It has an opening of 24 in. between the faces of the cylinder wheels. The machine is approximately 14 ft. long by 6 ft. wide and weighs 20,000 lb.

Electric Grinder with Vertical and Horizontal Feed

The Standard Electrical Tool Co., Cincinnati, has brought out the electric grinder here illustrated, a feature of which is the arrangement for both vertical and horizontal feed.

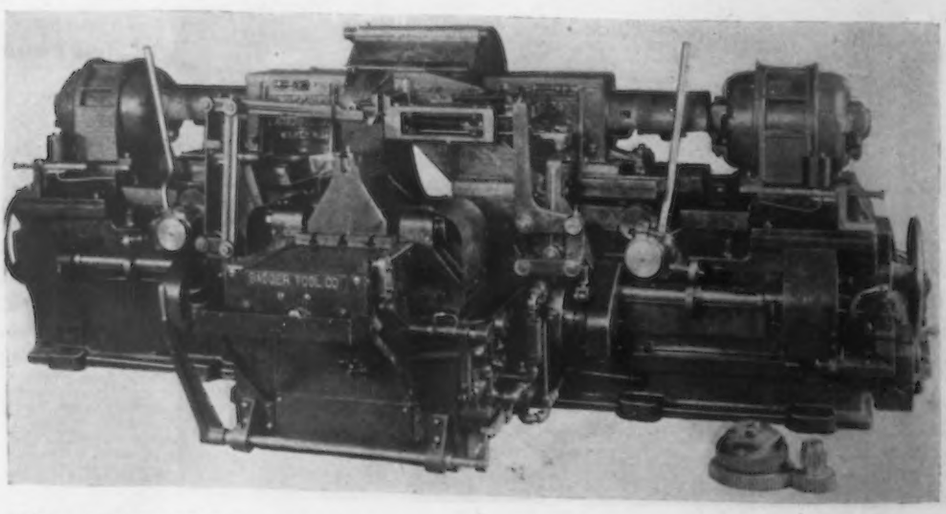
The machine is available in the following three sizes: ½-hp. with an 8-in. x 1-in. grinding wheel; 1-hp. with a 10-in. x 1-in. wheel; and 2-hp., carrying a 14-in. x 1½-in. wheel. This grinder is adapted for general grinding



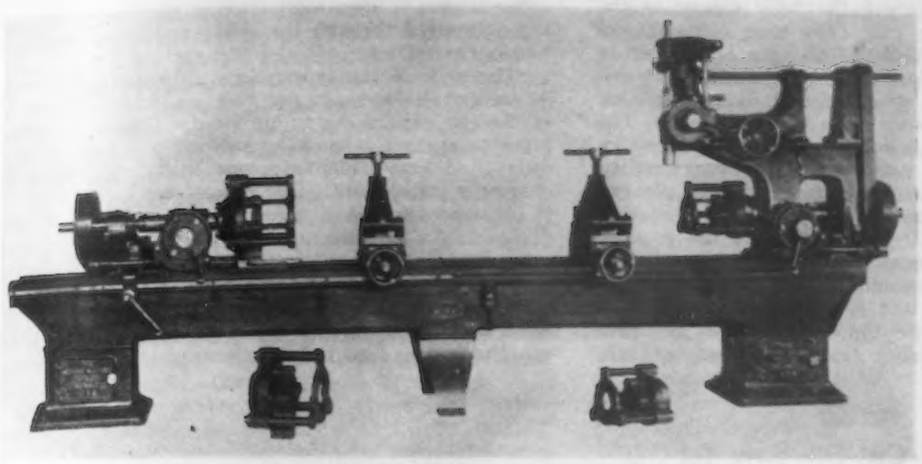
The Machine Is Adapted for General Grinding on a Lathe, Milling Machine or Planer

on a lathe, milling machine or planer. The horizontal bracket can be made in different lengths to suit requirements and is especially adapted for grinding collector rings on large generators.

Bearings are of phosphor bronze and of split-taper type. They are adjustable for wear and are arranged for protection against dust. The adjustment on the bearings is taken up by means of lock nuts located under the emery wheel flanges.



The Construction of the Spindle With Self-Contained Lubricating System Head Is a Feature. Each 24-in. grinding wheel is driven by a 20-hp. motor



The Horizontal Heads Drill the Ends of the Hydrant Pipe and the Vertical Head Drills Into the Side

Special Machine for Drilling Cast-Iron Hydrant Pipe

The drilling of cast-iron hydrant pipe is the function of the special machine here illustrated which has been built recently by the Morris Machine Tool Co., Cincinnati. The machine is equipped with two horizontal multiple-drill heads for drilling the ends of the pipe and one vertical head for drilling into the side of the pipe. The vises and the left-hand head are adjustable along the bed to take pipe ranging from 3 to 9 ft. in length. The vise jaws are independently adjustable to take round or irregularly-shaped pipe ranging in diameter from 4 to 10 in. The vertical head is longitudinally adjustable.

Each spindle of the machine has independent power feed and is equipped with a dial depth gage and automatic trip, which is set for disengaging the feed after drilling to the proper depth on repetition work. The spindles and quills of the machine are of alloy steel, heat treated. The drive is by means of a 10-hp. motor mounted on the rear of the machine. Power is transmitted by means of chains to the rear drive shaft and then through the horizontal and vertical heads. The chain which drives the vertical head has an automatic self-adjusting idler.

The drill heads are of the fixed-center type with hardened and ground spindles and gears mounted complete with radial and thrust ball bearings. Drill heads with any number of spindles on bolt circle to take care of different sizes of pipe, are available.

Receding Chaser Collapsible Taps for Cutting Tapered Threads

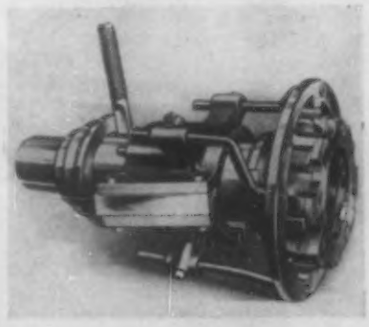
Receding chaser collapsible taps for cutting tapered threads in tool joints, casing shoes, pipe couplings, pipe flanges, valve bodies and other fittings, has been brought out recently by the Victor plant of the Landis Machine Co., Waynesboro, Pa. This new tool, designated as the style M, replaces the company's present style in sizes 4 in. and larger.

The style M tap is available in three groups, each of which employs one body with a series of detachable heads. The first group includes three heads, the smallest of which, 4 in., cuts threads 4⅝ in. and 4¾ in. in outside diameter and the largest 5 in., cuts 5½, 5 9/16 and 5¾ in. outside diameter. The second group includes seven heads, from 6 to 12 in., and the third group includes nine heads, from 13 in. to 24 in. The smallest head of the latter group is for cutting threads of 13⅜ and 13¾ in., outside diameter, and the largest is for cutting threads of 24 in. and 24½ in. outside diameter.

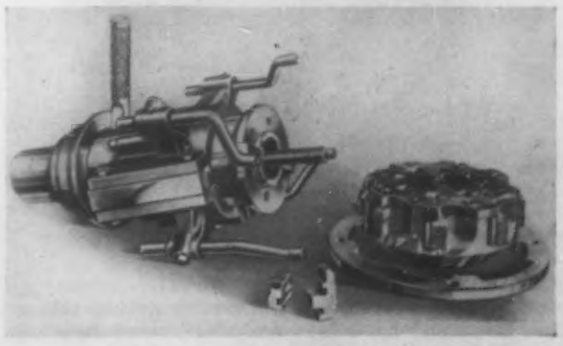
The arrangement of the tool may be noted from the illustrations. The body includes the cam collar, cam slide, cam plunger extension, expanding collar, trip ring rods and minor details. The head is made up of the plunger, chaser blocks, chasers, tap and trip ring. The body is of 1045 S.A.E. steel; the head, including the seats of the chaser-block slots, the chaser blocks, the plunger and trip being of the same steel, hardened and ground. The chasers are of high-speed steel and ground all over.

The head is bolted to the flanged end of the body by hollow head socket screws placed in the bottom of the chaser-block slots. The surfaces of both the head and body are ground to insure alinement and a heavy key is inserted between the body and the head to take the driving strain.

Chaser blocks in all the heads in group 1, 4 in. to 5 in., are interchangeable, and those in all heads in groups 2 and 3, 6 in. to 24 in., are interchangeable. As the chaser blocks are permanent parts of the tap there is no danger of variation whenever the chasers are changed. This construction is also stressed as



Three Sizes of Body and 19 Sizes of Heads Are Available



permitting use of shorter chasers. The threads of the chasers are ground after hardening to assure accuracy of form and lead. The number of chasers used per head is on the basis of one per inch in the even number sizes; the odd-number sizes have the same number of chasers as the one size smaller even number. Chasers are regularly furnished for cutting A.P.I. standard threads, but chasers for other forms of thread can be supplied.

The body of the tap is ground internally and externally to afford proper fits for all working parts. Bodies of special length can be furnished for work requiring threads longer than the standard length provided in the tap or for reaching through a recess to beginning of the thread.

The cam collar, a semi-steel casting, carries the cam slide and cam. Its position on the body and dis-

tance which it moves along the body determine the length of thread being cut. The cam slide, of tool steel and hardened and ground all over, is inserted in the top of the cam collar. The cam, which is of tool steel and hardened and ground on all sliding surfaces, works between two hardened gibs in the tap body. The top is milled for cutting any two tapers of thread by proper pivoting in the cam slide. Angles are milled on the sides of the cam for contact with the plunger extension. Downward movement of the cam, imparted by the cam collar and cam slide, causes the plunger to recede and in turn draws the chasers to produce a tapered thread. The expanding collar on the tap serves to expand the chasers and set the cam collar in the tapping position when the tap is rotated. It also provides a positive collapsing feature in that the cam collar strikes it upon completion of the thread, through a pin inserted through the collar and the plunger extension, and draws back the plunger.

The style M tap is regularly furnished for cutting ⅜ in. and ¾ in. taper per foot, and any combination of the two tapers can be provided. Change from one taper to another is made by shifting a bolt in the cam collar and cam slide from one hole to another and changing the chasers. Size adjustment on the chasers is obtained through a screw in the front end of the plunger. An adjustment of approximately ⅛ in. either over or under size can be obtained on each head. These tools may be used either as rotary or stationary taps. When used as a stationary tap, the tap is expanded by hand with the operating lever; when used as a rotary tap, the lever is removed and the expanding collar used.

High-Speed Cut-Off Saw for Small Sections

Unusual speed of cutting is claimed for the No. 0 metal cut-off saw which has been added to the line of the Hunter Saw & Machine Co., Pittsburgh. The machine employs a circular toothed saw and is designed for the cold cutting of the smaller light section beams,

Standard ¾ In. Pipe Is Cut in 2 Sec., and 2 x 2 x ⅛ In. Angles and ¾-In. Steel Bars in 3 Sec.

angles, brass, copper, structural and welded tubing, pipe, fence and fire-escape materials, metal furniture parts, light section pressed and draw steel shapes and similar material. It can be arranged for automatic operation, if desired.

Standard pipe, solid brass, and conduit tubing ¾-in. in diameter are said to be cut in 2 sec. and less. Solid steel ¾-in. bars, 2 x 2 x ⅛ in. angles, 1½-in. brass or copper tubing, and 2-in. standard tubing are cut in 3 sec. and less.

The arrangement of the machine may be noted from the accompanying illustration. The saw blade is protected by steel guards which may be removed conveniently for changing the saw blade. A pocket cast on the under side of the table incloses the saw at its lowest point and serves to catch the cuttings, which may be removed conveniently through a door at the bottom of the pocket. The saw is mounted on the motor shaft and is driven by a 5 hp. ball-bearing motor. Bearings are inclosed in oil-tight, dust-proof housings and require infrequent attention. The saw blade is 18 in. in diameter. The speed of the spindle is 3500 r.p.m. and the peripheral speed of the 18-in. saw is 16,500 ft. per min.

The tilting frame is provided with a spring cushion stop and is connected with a spiral spring to return the frame to the height necessary to clear the material being cut. The saw is fed down through the material by an off-side hand lever attached to the tilting frame, and a stop is provided so that the saw will just clear the material being cut. The saw is held in balance by an adjustable counterweight. The table of the machine is provided with a quadrant stop which may be set to any angle within the sweep of the saw blade. Material to be cut is clamped in the quick-acting eccentric vise. The machine is 26 in. wide, 52 in. long and 55 in. high over all. The net weight is 900 lb.

Machine for Hand Reaming of Holes Ranging from 1 to 3 In. in Diameter

The Blanchard Machine Co., 64 State Street, Cambridge, Mass., has developed a power driven hand reaming machine for use in assembling departments for removing burrs and for final sizing of holes in bushings. In the turret lathe department the machine

The Reamer Is Held Vertically in the Chuck and the Work Is Held by Hand or by Wrenches. Two Speeds of Rotation Are Provided

is said to fill the need in the accurate sizing of machine-reamed holes before the work goes on an arbor for further machining.

Ordinary hand reamers may be used, these tools being held vertically in the machine and rotated at either of two speeds, 21 or 38 r.p.m. The work is held by hand or by means of a wrench. It is pointed out

that since the operator merely holds the work, the reaming operation is not fatiguing, and a much larger quantity of work can be reamed than by the usual hand reaming method. It is stated that there is no loss of accuracy because the work is free to allow the reamer to follow the hole. Large pieces may be grasped with both hands; small pieces are held with a double-handle wrench. Heavy pieces, or those having most of the weight on one side, may be counterbalanced conveniently by means of a spring attached overhead, or a cord and counterweight.

For continuous work in plain holes, a reamer with high-speed steel cutting edges is recommended. For holes having keyways, a spiral fluted reamer is used, the angle of spiral being large enough to bridge the keyway. The chuck is a Cushman two-jaw universal, round body, holding 7/16 to 1 11/16 in., square.

The machine is driven by means of a 1½-hp. motor, which is belted to a worm shaft with 1½ in. belt on 4½ in. and 6 in. steps of cone pulleys. Belt tightening is by means of screw adjustment. The worm and gear are inclosed and run in oil, and a ball thrust bearing is provided on the worm. Ample provision is made for lubrication. Control of the motor and overload protection is by a switch mounted on the base. The floor space occupied by the machine is 27 x 36 in., and the height from the floor to the top of the chuck is 37¼ in. The net weight, with a.c. motor, is 750 lb., and with d.c. motor, 820 lb. The machine was originally developed for use in the company's own shops.

Offers Motor-Driven Slitter Cutter and Disk Grinder

A motor-driven model of its slitter cutter and disk grinder, designated as the No. 31 B, is now manufactured by the Bridgeport Safety Emery Wheel Co.,

The Grinding Wheel Is Mounted Directly on the Shaft of the Driving Motor, Eliminating Belts and Gears

Bridgeport, Conn. In this machine, the slitter cutters to be ground are carried and held on the work spindle by suitable bushings and a nut.

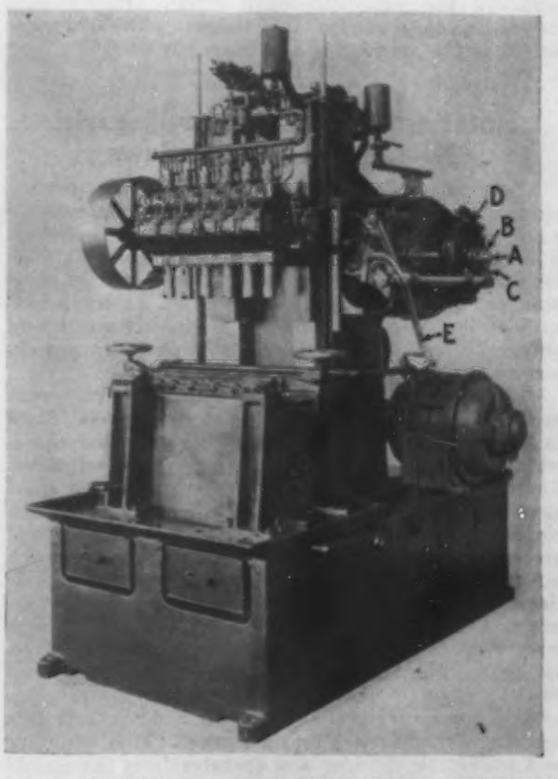
The grinding wheel is mounted directly on the shaft of the driving motor, which is equipped with ball bearings. The bearings are located in each of the motor end-shields and are arranged to take both the radial load and the end thrust. The grinding wheel is arranged so that it may be swiveled on a slide, which is operated in and out by means of a handwheel and screw mechanism. Guards are provided for the grinding wheel.

The work spindle is driven by a ½-hp. 900-r.p.m. motor on the work-head, the power being transmitted by silent chain and gearing. The work-head is also mounted on a slide upon which it may be swiveled for grinding bevels on the work. The slide may be fed in or out by means of a screw and hand-wheel and a graduated collar is provided for indicating the amount of feed. The ways upon which the work-head slide operate are at a right angle to those of the grinding head.

Although regularly arranged for dry grinding, the machine may be equipped with pump and piping for wet grinding. A magnetic chuck may be used. The grinding wheel is 10 in. in diameter by ⅝ in. face and has a 1 in. hole. A 1-hp. 1800 r.p.m. a. c. motor is used for driving the grinding wheel. The diameter of the wheel spindle in the bearings is 1½ in. and of the work head spindle, 1¾ in. The length of the bearings is 4 in. The maximum swing of the machine is 16 in. The floor space occupied is 42 x 42 in., and the weight of the machine is 1250 lb.

Improves Automatic Cylinder Lapping Machine

An improved No. 10 multiple-spindle automatic cylinder lapping or honing machine has been placed on the market by the Moline Tool Co., Moline, Ill.



A Clutch and Brake on the Main Drive Shaft Replaces the Two Clutches Formerly Required

The machine is available with spindles and jig for four, six or eight cylinder blocks. The shifting of a single lever starts rotation of the lapping tools, brings them down to the working position where they reciprocate a predetermined number of strokes and are then returned to the starting position and stopped, the cycle of operations being entirely automatic.

The cylinder to be lapped is placed in the jig from the end and is located by disappearing pins which are operated by a lever at the side of the machine. The cylinder is then clamped in position by means of the handwheels. The upper part of the jig has lap-closer or retainer bushings which hold the laps in a closed position and guide them into the cylinder bores.

The machine may be arranged for either lineshaft or motor drive, the latter arrangement being shown in the illustration. From the main drive shaft the power is transmitted by belt to another shaft which drives the spindles through spiral bevel gears. The entire head of the machine slides up and down in guides on the face of the column, and springs are used to support the head, assuring smoothness of motion. Reciprocating motion is obtained through a rocker arm

at the top of the machine, the oscillation of this rocker arm being by means of a connecting rod and crank mechanism.

On the previous model of this machine two clutches were required, one on the main drive shaft, through which the rotation of the spindles was controlled, and another on the main driving gear for controlling the reciprocation independently of the rotation of the spindles. In the improved design, both of these clutches have been eliminated, one large twin disk clutch, mounted with the drive pulley on the main shaft, being used to start and stop the entire machine. This clutch is actuated through the center of the main drive shaft by the plunger *A*, which is operated by the spool *B* and shifter *C*. The brake, *D*, mounted on the end of the main drive shaft, is operated by the clutch mechanism, the brake being applied when the clutch is disengaged. This arrangement is claimed to provide positive and sensitive control of the machine and to be of particular advantage in stopping the reciprocation of the rail and the rotation of the laps in the withdrawn position, as well as in eliminating shock in starting the machine.

The length of the working stroke of the machine is adjustable from 4 in. to 6½ in. Reciprocating parts, including the rail, slide, and heads, are made of aluminum, to minimize the weight. The shipping weight of the machine is approximately 9600 lb.

Rotating Attachment for Use with High-Speed Friction Saws

Reduction in time required for cutting rounds, squares and other heavy bar sections is claimed for a new rotating attachment offered by Joseph T. Ryerson & Son, Inc., Sixteenth and Rockwell Streets, Chicago, for use with its Nos. 3 and 4 high-speed friction saws. Standard 8-in. pipe is said to be cut on the No. 3 saw, without distortion, in 12 sec. A similar attachment previously marketed by the Ryerson company was described in THE IRON AGE of Sept. 2, 1926.

The attachment consists of a structural framework upon which a carriage for the material travels. Stock to be cut is held in a pneumatically-operated chuck, which is rotated by means of a constant-speed motor. The drive from the motor is through a change speed gear box which, with the motor, is located on the carriage. Power lines for the motor are located in a protected position on the frame of the machine. A center rest, arranged to receive bushings for various sizes of material, is mounted on the work table of the saw. A sliding gage stop also located on the work table consists of a heavy casting with screw stop providing for fine adjustment. Between the steady rest and the gage stop there is a V-shaped support which holds the work while it is being cut and also acts as a dumping device for the finished pieces. It is connected to a pneumatic cylinder and operates from the control stand.

The one central control stand located at the front of the saw, as shown in the illustration, enables one operator to control all production operations from the one position. Levers controlling the saw, cooling water for the saw blade, air valves for operating the pneumatic chuck, together with a capstan wheel for moving the material forward to the next cut are all located on the stand. The motor controls can also be placed on the stand if desired.

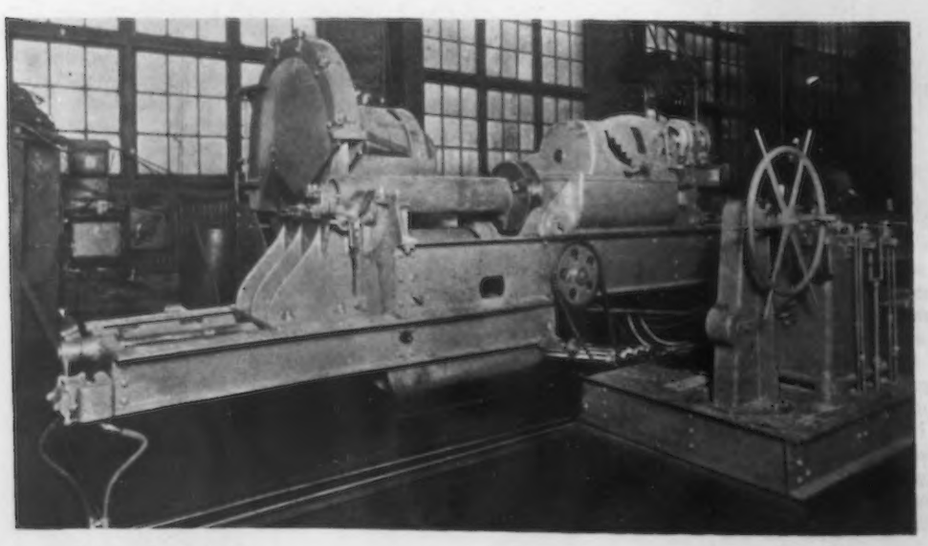
Resistance of Steel to Magnetization Not True Test of Qualities

In connection with research of the relationship which exists between the magnetic and mechanical properties of iron and steel, the United States Bureau of Standards has discovered that the resistance which steel offers to magnetization does not truly represent the magnetic properties of the material and, therefore, cannot be expected to serve as a basis for correlating them with the mechanical properties of the metal. The research has been conducted by the bureau in an effort to discover a definite connection between the two sets of properties in steel.

If such a relationship as the one sought could be established, according to the bureau, non-destructive methods of great value could be developed for the testing of steel and steel products. One of the most interesting subjects of scientific research at the present time is the relationship between these properties and, in the effort to discover a definite connection between them, various ways of expressing the magnetic characteristics of a material have been developed.

One of these ways is by means of the so-called reluctivity relationship which represents the magnetic reluctivity (resistance to magnetization) as depending directly in a simple way upon the intensity of the magnetizing force. The equation representing this relationship contains two numerical constants which should be characteristic of the material. If these constants are truly characteristic and if there is a definite relationship between magnetic and mechanical properties, they should be useful for purposes of correlation and ultimately form the basis of a practical method of test.

The experimental and theoretical study recently carried out at the Bureau of Standards has led to the conclusion that this reluctivity relationship does not truly represent the magnetic properties of the material and therefore cannot be expected to serve as a basis for correlating them with the mechanical properties. Some other basis of correlation must be sought, therefore. Although the work of the bureau has not succeeded in developing a method by which mechanical properties can be determined from a knowledge of the magnetic properties, it has been useful in showing what not to expect. Copies of scientific paper No. 546, in which the research leading to this conclusion is described, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, at 5c. each.



The Rotating Attachment Facilitates the Cutting of Heavy Rounds, Squares and Other Sections. Standard 8-in. pipe is cut in 12 sec.

BORING AND TURNING MILL

Heavier Proportions and Refinements of Design Feature New 18-Ft. Vertical Unit

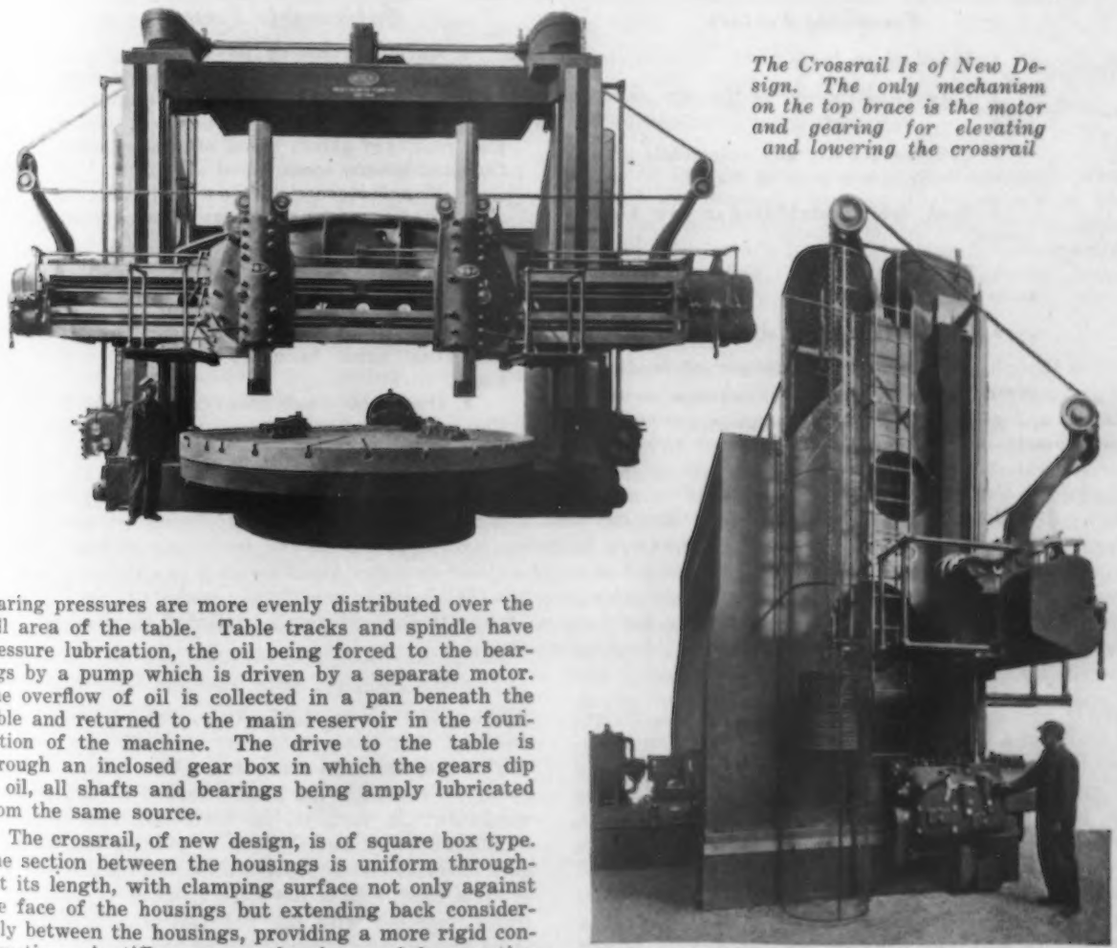
AN 18-ft. vertical boring and turning mill incorporating improved features and of heavier construction than its previous machines of this class, has been completed recently by the Niles Tool Works Co., division of the Niles-Bement-Pond Co., 111 Broadway, New York.

The table is supported on the bed on double annular tracks, one as near as possible to the table drive gear and the other close to table spindle, so that the load and bearing pressures are more evenly distributed over the full area of the table. Table tracks and spindle have pressure lubrication, the oil being forced to the bearings by a pump which is driven by a separate motor. The overflow of oil is collected in a pan beneath the table and returned to the main reservoir in the foundation of the machine. The drive to the table is through an inclosed gear box in which the gears dip in oil, all shafts and bearings being amply lubricated from the same source.

The crossrail, of new design, is of square box type. The section between the housings is uniform throughout its length, with clamping surface not only against the face of the housings but extending back considerably between the housings, providing a more rigid construction. A stiffener or camber beam of deep section is secured to the crossrail to correct any deflection in this member. In addition to the top brace, the upper structure is strengthened by a large built-up girder, as shown in the illustration.

Elimination of much of the top works has been effected by providing separate motors, one on each end of rail, for the rapid traverse of saddles and bars, the only mechanism on the top brace being the motor and gearing for elevating and lowering the crossrail. Feeds are obtained through gear boxes having sliding gears running in oil, and feeds are independent and reversible for each head. Feeds and traverses of bars and saddles are engaged or disengaged by means of large friction clutches on the ends of the rail. The right-hand head is equipped with a special gearing arrangement whereby the saddle and bar feed may be engaged simultaneously for cutting certain tapers from the horizontal. Change gears are also provided so that these tapers can be varied. Bars and saddles are furnished with direct reading micrometer dials which are graduated in inches and thousandths of an inch. These dials show at a glance the amount of movement these members have made in relation to the reading when the feed or traverse was first engaged.

Another feature is the adjustable limit switch at the top of the housings, which automatically cuts off the motor when the crossrail has reached the limit of its travel. The safety and convenience of the operator have been taken into consideration by the duplication of operating levers at the saddles and ends of the rail, and by providing an adjustable platform with rail on each saddle and at the back and each end of the crossrail as well as round the top brace, with access to these parts by means of steel ladders. Counterweights are inclosed in guards of steel wire mesh, as shown.



The Crossrail Is of New Design. The only mechanism on the top brace is the motor and gearing for elevating and lowering the crossrail

New Line of Welding Rods

"Dipped" welding rods, for which a number of advantages are claimed, have been brought out by the Lincoln Electric Co., Cleveland.

Claims for these dipped steel rods, named the Stable Arc welding rod, include the following: "With this new rod it is possible to go to considerably larger diameters than customary in rods for metal electrode welding. It permits of much higher currents than used heretofore, resulting in increased speed and decrease in welding cost. In addition, the greater heat gives better penetration and a smoother finished bead. The greater heat obtainable results in an annealing action which increases the ductility of the weld and gives a greater elongation. Current densities of 15,000 amp. and more per sq. in. can be used."

Decrease in the "splutter" of the arc is said to reduce the spattering of metal, more metal per pound of rod being deposited. Because of the clean finished weld, little brushing or cleaning is said to be necessary between beads on heavy welds of more than one layer. The rods are obtainable in standard 50-lb. bundles wrapped in burlap, and in lengths of 14 in. or longer.

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Favorable and Unfavorable Factors Affecting Business May Be Summarized as Follows:

Favorable Factors

1. Retail trade large.
2. Purchasing power of factory labor high.
3. Building activity and automobile production both gain a little in March.
4. Bank debits established a new high record.
5. Interest rates low; Federal Reserve ratio high.
6. Commodity prices fairly stable.
7. Strong financial position of leading companies.
8. Light mercantile inventories.

Unfavorable Factors

1. Farm purchasing power low.
2. First quarter building activity considerably under last year.
3. Automobile output 15 per cent under last year, yet shows signs of over-production and severe competition.
4. Manufacturers' inventories large.
5. Steel orders decline; steel scrap lower.
6. Business failures increase; new enterprises decline.
7. Considerable unemployment.
8. Uncertain liquidity of bank assets; numerous bank failures; large brokers' loans.
9. Disturbed conditions in Japan and China.

BUSINESS volume continues above normal, but the trend is irregular and possibly slightly downward. It promises to continue less than last year, and the effects of declining commodity prices and narrow profit margins are becoming more apparent in the increasing number of business failures. These conditions are not signs of an over-extended condition such as exists at the peak of a business cycle. The most plausible theory is that business has already passed the peak of a minor business cycle, but that there has been no financial crisis or strain and that the business recession will, therefore, not be severe, nor long continued.

TWO leading indexes of business conditions, freight traffic and bank debits, illustrate the peculiar situation in business during recent months and the difficulty of applying old ideas of the business cycle. Business has been above normal for the last year, or longer. Yet, as the first chart shows, the volume of bank checks drawn against individual accounts (bank debits) still shows a strong upward trend, allowing for seasonal conditions, and even railroad tonnage holds near peak levels. We may well ask: Is business moving in any "cycle"? If so, where are we in the cycle?

Our opinion is that business cycles will continue to occur. Probably there will be differences in their duration and in the extent of the up and down swings, but business will still have recurrent periods of expansion and contraction. As to our present position, we think that *business* is near the peak of a cycle and has already declined somewhat. The present business cycle, however, has not been attended by any *financial* weakness. In fact, it has been obscured by several conditions which have tended to prolong the period of good business and to prevent or soften the decline. One of these conditions is the plethora of money and credit, which, together with the financial control of the Reserve System, has softened the business cycle. Another condition is the extraordinary gain in efficiency and economy of production.

The first condition has prevented financial strain and encouraged industrial activity. The abundance of credit has allowed an expansion of installment buy-

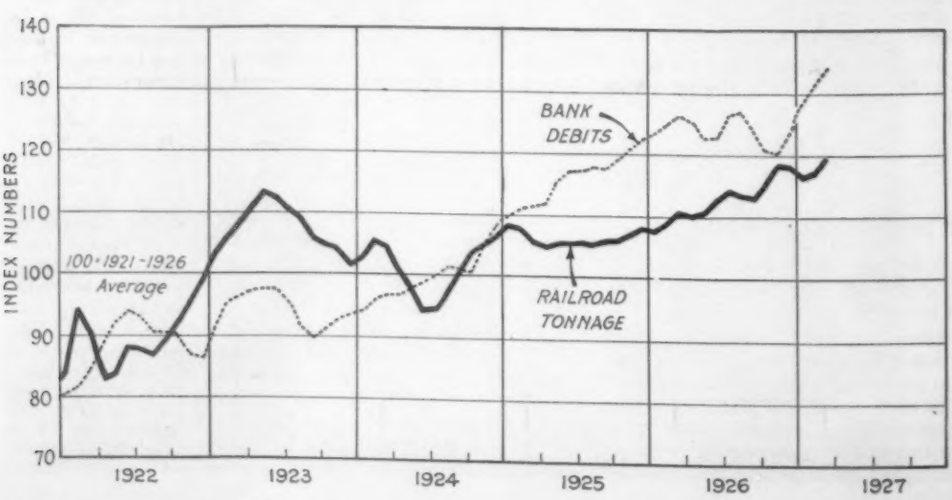


Fig. 1—Railroad Tonnage Returns and Those for Bank Debits Indicate That Trading and Speculation Are Exceptionally Active. Installment buying, based on easy credit, has supported a wide expansion in retail trade and may not be shortly halted unless through future price inflation

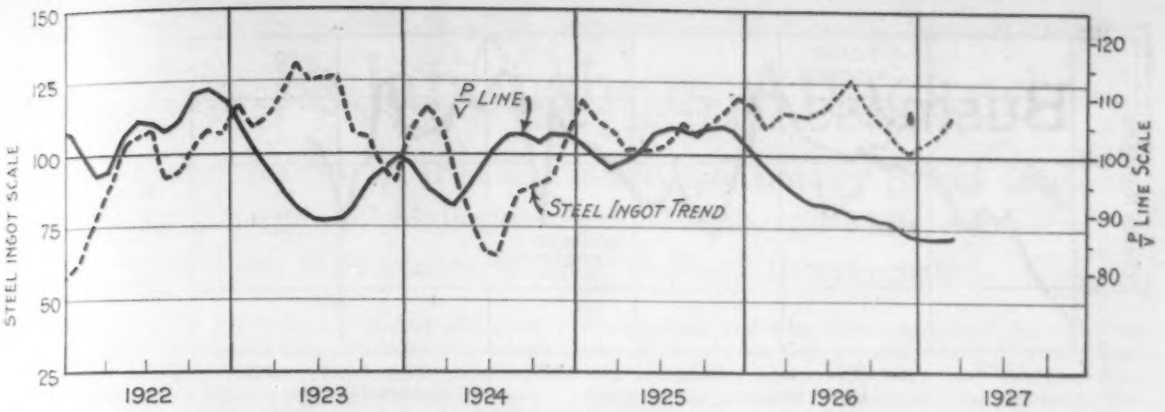


Fig. 2—Continued Dropping of the P-V Line, Which Has Persisted for More Than a Year, Has Now Given Way to a Slight Upturn. Representing the ratio between commodity prices and the physical volume of trade, this line generally anticipates the trend of business by about five months. The steel ingot curve, after falling sharply for several months, has gained substantially since December

ing. In fact, there has been all along a tendency toward inflation which has actually found expression in real estate and in stocks. The second condition has allowed profits to be made in spite of declining commodity prices. The efficiency of labor has been increased, allowing high earnings without preventing profits. The whole business structure has been supported by an extraordinary volume of retail trade, which in turn has rested on large consumer purchasing power and has been stimulated by installment credit.

We think that the limits of economy in production have been about reached for the present. But we are still blessed—or cursed—with a Croesus-like condition of finance, and there is some reason to believe that there will be no prolonged major cyclical downswing until this condition ceases to exist—perhaps as a result of a period of general inflation yet to come.

Business Improvement Forecast

OUR P-V line, which is our most important barometer of general business, after declining during the period since November, 1925, with only slight pauses in June and September last year, registered a slight upturn in March (see Fig. 2). This holds out hope of some improvement in business within a few months. The upturn in the barometer is due to a slowing up in the decline of commodity prices, while the physical volume of trade has fallen off a little more rapidly.

In view of the fairly stable condition of commodity prices, this means that prices have become so low that little or no profit margin exists and that, on the average, production will soon be reduced to a quantity that can be sold without requiring further price cutting. It will take several months of readjustment to complete the process and restore the equilibrium between demand and supply. But the slight upturn in the P-V line justifies hope of improvement by the early autumn. Meanwhile further recession in business will probably intervene, with increased failures, lower profits and severe competition.

Production Volume Below Last Year

Aside from the coal and oil industries, both of which are in an abnormal position, the volume of industry is probably not so large now as it was a year ago. Building activity in the first quarter has been about 5 per cent under last year, and automobile production 15 per cent lower. Certainly, business has not made much gain.

Already signs of a reduction in ingot production in April are appearing. It now seems clearer than ever that the March output was rather abnormal on account of the approaching coal strike. In part, the steel situation resembles that of early 1924, largely because of the sharp recovery in automobile production that occurred in January and February, which was similar to the condition at the end of 1923, when a peak for that period was reached. Steel production, however, is now likely to yield to general business conditions, as forecast by the P-V line, and to sag to a point below normal by mid-summer, though this opinion is hazarded with full admission that strike conditions are an uncertain factor.

Retail Trade Dominates Business

ALL the curves in the third chart were higher in February, and retail trade showed an even sharper rise in March. These statements are the more significant because in all cases we eliminate the merely

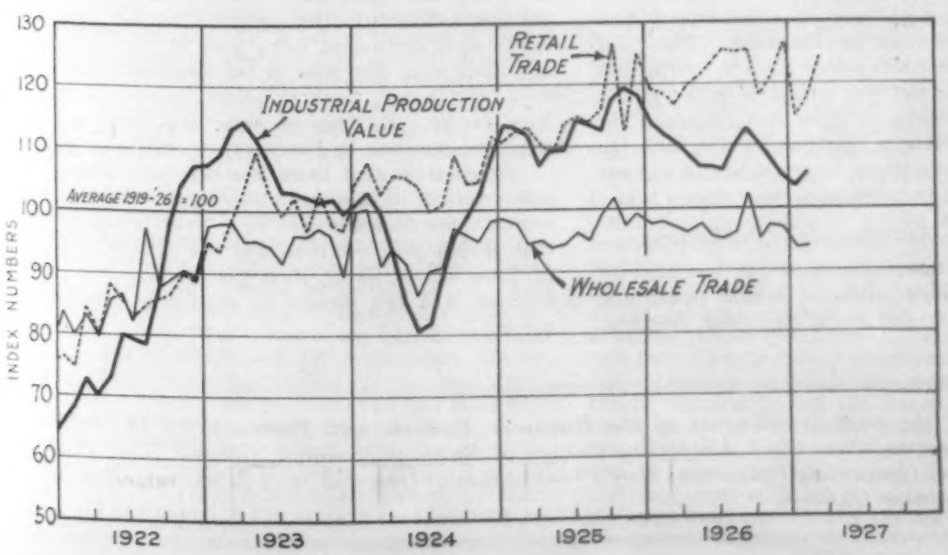


Fig. 3—Retail Trade, Supported in Large Measure by Huge Installment Buying Volume, Continues at Near Peak Levels, Though With a Declining Trend. Wholesale trade, on the other hand, has been below normal almost continuously for several years. Some bypassing of the middleman, together with a level of wholesale prices well below retail prices, in part explains this

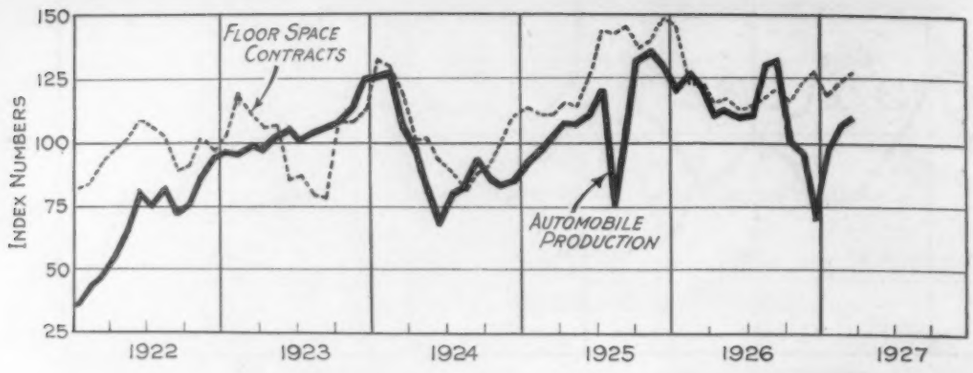


Fig. 4—Building Construction and Automobile Production, While Still at High Levels, Give No Indication of Sustained Heavy Volume. The automobile industry is spotty and the boom in residential building appears to be over

seasonal changes. Moreover, the indexes used are all based on values and, therefore, are comparable, requiring no allowance for price changes. The indexes of retail and wholesale trade represent dollar sales and the quantity of industrial production has been multiplied by wholesale prices.

All of the indexes are expressed as percentages of the average for the eight years 1919-26, which insures that they are in something like a normal relation when they coincide. Wide divergencies represent developments that are probably abnormal.

Evidently retail trade is relatively high and is better sustained than either wholesale trade or industrial values. Making allowance for seasonal conditions, the March rise carried retail trade to a point not much below peak levels. It still has a very irregular appearance and has shown a slightly declining trend since September, but consumer buying is on such a high level that the volume of business is large. One could wish, however, that more of it consisted of cash purchases.

Wholesale Trade May Be Permanently Curtailed

Wholesale trade is much less active. It has been below average so much of the time in recent years that we may probably infer the existence of a long-time trend toward permanently lower levels as compared with retail trade. Recently wholesale sales have been the lowest since the middle of 1924, but, considering the season, February was a little better than January.

The value of the industrial output, estimated from the new Federal Reserve Board index, shows how far recession has carried business downward since the end of 1925. Owing to the long decline in prices, the total value of commodities produced (and probably producers' sales) has fallen off more than the physical output. This means that production has been so large that the total output of our industries could be sold only at lower prices.

Perhaps the most significant point, however, is that no general overproduction is indicated. The total value of industrial products seems large in comparison with wholesale sales, but the wholesale index is not sufficiently comprehensive to make this certain. The one thing that is certain is that retail trade, with the aid of liberal credit, continues large enough to support the present volume of industry at present prices.

Building and Automobiles Slackening

TWO of our basic industries have felt recently the stimulus of sustained consumer buying power and the aid of easy money and credit conditions (see Fig. 4). Both building activity and automobile production have expanded somewhat more than usual in the first three months of the year, and activity in both continues on the whole somewhat above normal.

March automobile production in the United States and Canada was approximately 407,000 cars and trucks; this compares with 317,000 in February, 249,500 in January, and 448,500 a year ago. This has meant a good demand for automobile steel during the first quarter and has tended in a general way to support industry.

Motor Industry Not Prosperous

It will be noted, however, that the curve of automobile production is rounding off and that the gain, allowing for seasonal conditions, has been smaller in each of the last two months. March production, moreover, was considerably under that of a year ago and the total for the first quarter was 15 per cent lower than in the same period of 1926. The automobile industry is extremely "spotty," with some companies doing poorly, Detroit employment relatively low, and competition severe. Inventories of automobile dealers have been increasing too rapidly and the used car problem remains serious.

Dwelling Construction Boom Appears Over

Building activity, while showing gains recently, gives no indication of further expansion. The level in March was a little above that of a year ago, but the total for the first quarter is about 5 per cent lower. Clearly the boom in residential building is over and we note that orders for enameled sanitary ware and for architectural terra cotta, both in March and in the first quarter, were far below the same periods of last year.

Miscellaneous construction, however, has been active. The trouble is that such construction is likely to furnish but an irregular demand for steel. Also the building and construction program has been extremely spotty as to territories, being good in the Central West and Southwest, but poor in the Southeast, the Northwest, Pittsburgh territory, New York and northern New Jersey. Lettings of structural steel in March were smaller than in February, or in March, 1926.

We conclude that these two key industries indicate a fair volume of business which may perhaps be called normal. But indications of an average level lower than that of last year continue, and the outlook for profits in these industries is such that buying will remain cautious and the buyers be extremely interested in prices.

Schedule of the next installments of the ***Business Analysis and Forecast,*** *by Dr. Lewis H. Haney, Director, New York University Bureau of Business Research, follows:* ***May 12—Activity in Steel Consuming Industries; May 19—Position of Iron and Steel Producers; May 26—General Business Outlook.***

Rate Relationships Attacked

Columbus Hearing in Iron and Steel Rate Inquiry Brings Out Many Charges of Maladjustment—Pittsburgh Mills Attribute Loss of Business in East to Rate Discrimination

THAT the present investigation of iron and steel rates in Official Classification territory will bring about far-reaching results which may completely upset the present alinement of producing districts in their relations to each other, was indicated at the second general hearing, conducted by Commissioner Johnston B. Campbell of the Interstate Commerce Commission at Columbus, Ohio, last week. Representatives from each iron and steel producing center apparently realize this fact, because they introduced into the testimony a myriad of facts and figures to prove that they are entitled to a decision that will place them in the best possible position to maintain and extend their present markets. The sessions began Tuesday, April 19, and were concluded Friday, April 22.

Even switching rates may be involved before all of the evidence in this case, identified officially as Docket 17,000, Part 6, Interstate Commerce Commission, has been submitted. Commissioner Campbell stated his hope that no investigation of switching rates would be necessary, but intimated that they are likely to be inextricably bound in with other problems in arriving at a fair and reasonable solution of the entire freight rate question.

Present Rates Have Localizing Effect

Throughout the hearing practically all testimony showed that in the past few years the rate structure has been responsible for localizing of iron and steel markets to a great extent. The amount of long-haul tonnage has been reduced to a comparatively low point, and iron and steel producers, blocked on long hauls by prohibitive rates of the steam railroads, are in many cases resorting to motor truck and water transportation to move their goods. Especially is this true of Cleveland. Furthermore, steel plants complained that iron and steel freight rates in general are too high in comparison with the charges on other commodities.

For purposes of comparison Commissioner Campbell suggested that the Jones & Laughlin scale be considered, and he asked witnesses to make recommendations of its revision either upward or downward. In putting forth this suggestion he emphasized that the commission is not permanently wedded to that scale, but thought that it would provide a convenient starting point for changing rates.

Development of Short-Haul Rates Outlined

To give the proper setting for the discussion of the Thirteenth Section case, calling for an increase in short-haul intrastate rates on iron and steel products in northeastern Ohio, V. C. Williams, assistant freight traffic manager Pennsylvania Railroad, outlined the history of short-haul rates. He stated that during the period 1893-1903 the general practice was to publish "winter and summer" rates in Central Freight Association territory, sixth class rates applying in summer and fifth class in winter. In case of a financial depression or of other unusual conditions, the summer rates sometimes were extended beyond their normal time limit. However, in 1892, one carrier set a rate of 4½c. per 100 lb. between Cleveland and Youngstown, a distance of 67 miles, because it was about one-half of the rate from Cleveland to Pittsburgh, 132 miles apart. Later the same rate, 4½c., was applied on the haul from Youngstown to Pittsburgh, 65 miles, and this same key rate has been extended to many other points.

From Jan. 11, 1903, until June 1, 1907, carload rates on iron and steel products in Central Freight Association territory were 110 per cent of sixth class, but that schedule did not apply to the rates from Cleveland to Youngstown, and from Youngstown to Pittsburgh. On the latter date the rate from Cleveland to Youngstown was made 10c., and at the same time the rate from Cleveland to points in the Mahoning and Shenango Valleys was raised to 5c. Thus, Mr. Williams stated, the action of one carrier in making the rate from Cleveland to Youngstown one-half of the rate from Cleveland to Pittsburgh had the important effect of forcing reductions in rates from the Valleys to Pittsburgh, from Pittsburgh to Wheeling and from certain other origin points to destination points in short-haul territory.

The result has been a depressed rate structure in entire short-haul territory which has persisted down to the present time. The method of rate construction just outlined was maintained until the advent of percentage increases in 1914. Other advances occurred in 1918 and 1920, with a decrease in 1922. Long-haul iron and steel rates in Central Freight Association territory were cancelled in 1917 and it was the intention of the carriers to cancel short-haul rates also, but the United States Railroad Administration instructed the carriers to withdraw their petitions asking for the establishment of fifth class rates. The carriers, however, were able to revise the key rates by increasing them 15.8 per cent, placing them on a basis of 11c. instead of 9½c. This revision affected intrastate rates in northeastern Ohio, northern West Virginia, western New York and western Pennsylvania, as well as interstate rates between those districts. The Ohio Public Utilities Commission refused to sanction the advanced rates, even though the State commissions in the other affected areas approved them. Under the Fourth Section provisions of the Interstate Commerce Act the carriers are now seeking relief from the Interstate Commerce Commission by asking that the upward revision of 15.8 per cent in northeastern Ohio be allowed. Should the general level of rates throughout Official Classification territory be advanced by order of the commission, the railroads want increased rates in northeastern Ohio that would be in line with the main rate structure.

Contends Cleveland Is Deprived of Geographical Advantages

Cleveland, judged on a mileage basis in comparison with Pittsburgh, both east and west, would have an advantage not possessed today, said A. H. Brown, assistant traffic commissioner Cleveland Chamber of Commerce, speaking for that organization and for about 45 companies in that city. Just to the extent that Cleveland must pay higher proportionate rates than Pittsburgh and Youngstown is Cleveland deprived of its advantages geographically. In regard to shipping to Eastern markets, Mr. Brown declared that Cleveland, like Pittsburgh, is in an unfavorable position except that it is even more aggravated.

The scale suggested by John A. Coakley, division freight agent American Steel & Wire Co., at the Pittsburgh hearing appeals to Mr. Brown as the most reasonable, provided that certain modifications are made. Mr. Brown believes that the progression of the Coakley scale is proper, but that the "peg," or base, rate should be 9½c. instead of 10c., as proposed by Mr. Coakley. Under the Jones & Laughlin scale the peg rate from Cleveland to Youngstown would be 12c., and the application of the Disque scale would raise it to 16½c. Application of the Jones & Laughlin scale would make no substantial change in the rates from Pittsburgh and Buffalo to New York. Mr. Brown said that he would hesitate to say in what position the Cleveland steel mills would be today if it were not for the large local market and for the development of the

automobile industry with its heavy consumption of iron and steel products. He stated that there has been a liberal movement of iron and steel from Cleveland companies to Michigan by motor truck. The rates for this mode of transportation are higher than the all-rail carload charge, but lower than all-rail rates on less-than-carload lots. He also mentioned the important growth of water transportation of iron and steel on the Great Lakes.

That the application of the Jones & Laughlin scale from Pittsburgh and Youngstown to points in western Ohio and Indiana has operated to the disadvantage of Cleveland was the testimony of R. D. Parker, traffic manager Corrigan-McKinney Steel Co., Cleveland. He stated that the mileage from Cleveland is from 40 to 75 miles less than that from Youngstown, and that prior to May 29, 1926, the rates reflected this difference in haul. After that date, however, the rates became the same from Cleveland and Youngstown to 53 of the 98 points, and the difference in favor of the former was reduced to ½c. to 14 of the points. The differential of Cleveland over Pittsburgh was cut down in like manner. Mr. Parker said that his company's markets are in Ohio, Indiana and Michigan, and that the company would not be content with localized markets on steel bars and light structural shapes.

Testifying on behalf of the Otis Steel Co., W. M. Lorenz, traffic manager, declared that the company has been handicapped in marketing its products by the carriers' interpretation of the commission's decision in the Pollock case and by the application of the so-called Jones & Laughlin decision. Mr. Lorenz emphasized the fact that his company is not advocating rates from Cleveland on the so-called Jones & Laughlin scale but is only protesting against the adjustment of rates from a few producing centers instead of including all producing points in that district. He said that his company's markets are in Ohio and Michigan and that a considerable portion of the short hauls, especially those calling for less-than-carload lots, is moved by motor trucks. In the last half of 1926 the Otis Steel Co. shipped 9933 tons of its material by water, and plans are under way for increasing shipments on the Great Lakes, according to Mr. Lorenz.

Argues Valley Rates Are Too High

Pointing out that present rates within the Mahoning and Shenango Valleys are higher than those within the Chicago, Steubenville-Wheeling or Pittsburgh districts for similar distances, H. D. Rhodehouse, traffic manager Youngstown Chamber of Commerce, Youngstown, Ohio, asserted that carriers, instead of proposing increases in these two Valleys, should be granting reductions so as to place rates on the same level with other steel districts. Present earnings for a distance of three miles, Indiana Harbor, Ind., to Grasselli, Ind., are $20 a car, or $6.67 a car mile. The same earnings are realized on rates from Steubenville, Ohio, to Mingo Junction, Ohio. From Duquesne, Pa., to East Pittsburgh, Pa., the earnings are $29.20 per car, or $9.75 per car mile, while the earnings from Struthers to Lowellville, Ohio, the same distance in the Valleys group, are $40 a car, or $13.30 a car mile. Under the proposed rates the earnings would jump to $48 a car, or $16 a car mile. This disparity in rates within the Valley district as compared with the rates within the other districts has seriously affected the costs of manufacturers in the Valleys who purchase iron and steel for use in their products.

The Mahoning and Shenango Valleys make up the second largest iron and steel producing district in the United States, testified Mr. Rhodehouse. Within this district are many manufacturers using iron and steel in great quantities. For this reason the movement of iron and steel in carload lots between points within the Valley rate group is large, data secured in 1924 showing that it amounts to 750,000 tons each year.

Eastern Shipments of Plates, Shapes and Bars from Pittsburgh Decline

Discrimination against Pittsburgh, particularly in its attempt to reach Eastern markets, was charged by John A. Coakley, American Steel & Wire Co., who appeared as the representative of the subsidiaries of the United States Steel Corporation. He pointed out that in the past seven years the shipments of heavy structural shapes, plates and bars from the mills of the Carnegie Steel Co. to Eastern points have fallen off nearly 160,000 tons. For instance, in 1926 there were about 969,000 tons of heavy structural shapes sold in those markets, of which amount Carnegie shipped but 74,000 tons. Plate sales were 970,000 tons, of which Carnegie shipped 88,000 tons, and of 1,269,000 tons of bars, Carnegie supplied some 276,000 tons.

Mr. Coakley declared that the traffic from the Pittsburgh district moving into the Eastern markets from the mills of the Carnegie Steel Co. pays the full fifth class rate, while competitive mills in the Philadelphia district pay commodity rates appreciably less than the fifth class. Consequently, competitive buying is restricted principally to the Philadelphia district mills. This is equally true of the general rate and market situation throughout all of the Eastern markets, stated Mr. Coakley. He also pointed out the fact that the National Tube Co. has been compelled to pay rates on tubular products to Eastern markets that are unreasonably high and accord a preferential position to competitive mills in the East. Mr. Coakley testified that during the past six or seven years shipments from the plants of the American Sheet & Tin Plate Co. to Eastern markets have been declining, because the company has been forced to pay full fifth class rates, whereas producers in the Philadelphia district enjoy rates about one-third less than the fifth class. The contention of the Steel Corporation is that if its companies in the Pittsburgh district are given relative rates, they can increase their long-haul tonnage. If they are not accorded those rates, the railroads will lose not only considerable long-haul business, but also the freight revenues on the raw materials going into the plants, a large part of which is iron ore moving into the Pittsburgh district by rail. On the other hand, the iron ore for Eastern companies is received mostly by water from foreign countries. In addition, the carriers haul the finished material from the Eastern mills at rates relatively one-third less than they get for transporting the long-haul traffic from Pittsburgh. If Bethlehem, Steelton and Sparrows Point are permitted to retain the present level of rates to the three principal markets—Philadelphia, New York and Baltimore—then the Pittsburgh-New York rate should be no higher than 25c.

Outlying Mills Handicapped by Present Rates

Failure to include outlying territory in rate readjustments of a general nature in recent years has worked a serious hardship upon the American Rolling Mill Co., according to F. E. Vigor, assistant traffic manager, who testified on behalf of the company. He said that with only two exceptions the rates from Ashland, Ky., to Central Freight Association territory are full fifth class Disque scale rates, while all of the rates from Middletown are on that basis.

To support his charges of discrimination against Middletown, Mr. Vigor showed that if the rate from Middletown to St. Louis, for example, were the same percentage of the fifth class as Chicago enjoys to the same city, the company would have to pay 25c. instead of 30.5c. To the same destination the rate from Ashland would be 27c. instead of 34c.

There is no objection to the continuation of long established and reasonable origin groups, provided that the Interstate Commerce Commission limits within narrow bounds the rights of carriers and others in defining what constitutes a group, said Mr. Vigor, who emphasized, however, that he is not advocating the group system. He voiced opposition to the continued grouping of Virginia cities. He stressed the point that southern Ohio and Michigan are the only sections within Central Freight Association territory not having commodity rates. Taking up the subject of export business, Mr. Vigor declared that in 1926 the Armco International Corporation sold 23,156 tons of sheets and plates in foreign countries except Canada, and that it is to the interests of the carriers to make reasonable rates to seaboard loading points.

Defends Grouping of Wheeling and Steubenville with Pittsburgh

On behalf of the Wheeling Steel Corporation's plants at Wheeling and Steubenville, F. W. Klos put

in evidence in support of maintaining these two points within the Pittsburgh rate group on long-haul traffic. Based on history, competition and eastbound and westbound mileage, the present grouping is warranted, he said. Wheeling takes rates based on the mileage to and from Pittsburgh for traffic to and from Central Freight Association territory, so that it pays rates for distances greater than the actual mileage. To and from the Eastern seaboard Wheeling's rates are set on the distance from Pittsburgh, which is less than Wheeling's mileage. However, if the rates both to Central Freight Association territory and to the Eastern seaboard are considered, it is contended that the situation balances or averages, so that the present condition is fair.

Protest Against Rates in Central Western Ohio

Declaring that no commodity rates on iron and steel, either carload or less-than-carload, are published from any producing point in Official Classification territory to destinations in central western Ohio, bounded on the west by the Indiana-Ohio line, on the east by a zig-zag line extending from Lorain on Lake Erie to Mansfield, Coshocton, Columbus and Zanesville on the east, and then south to Marietta on the Ohio River, H. E. Stiffler, traffic manager Marion Steam Shovel Co., Marion, Ohio, asked that unfair discrimination against consumers in that territory be abandoned. He said that he does not advocate any particular scale, but is seeking only the same relative rates accorded to competitors outside of central Ohio. Mr. Stiffler, in addition to representing his own company, was the spokesman for the Manufacturers Association of Central Ohio, a voluntary organization of about 75 manufacturers who consume annually about 100,000 tons of articles included in the iron and steel list involved in the investigation.

Although the only additional hearings scheduled in this investigation are in Detroit April 26 and in Chicago May 12, it is believed that the Interstate Commerce Commission will have another hearing in the East, probably at Atlantic City, in June.

Engineers to Visit National Military Academy at West Point

A trip to West Point, for members of several engineering societies, has been planned for May 12.

A boat has been chartered for the trip and on reaching West Point the party will be guests of Brig.-Gen. M. B. Stewart, superintendent of the academy. Inspection of the academy will be permitted, and special drills by the cadets and evening parade in full uniform will be seen.

The associations under whose auspices the trip will be made include: Associated Business Papers, American Chemical Society, American Electrochemical Society, American Institute of Electrical Engineers, American Institute of Chemical Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, American Ordnance Association, and the Society of Automotive Engineers.

COMING MEETINGS

April

American Welding Society. April 27 to 29. Annual meeting, Engineering Societies Building, New York. Miss M. M. Kelly, 33 West Thirty-ninth Street, New York, secretary.

American Management Association. April 27 to 29. Production executives' division, Book-Cadillac Hotel, Detroit. W. J. Donald, 20 Vesey Street, New York, managing director.

American Electrochemical Society. April 28 to 30. Annual meeting, Benjamin Franklin Hotel, Philadelphia. Colin G. Fink, Columbia University, New York, secretary.

May

American Institute of Mining and Metallurgical Engineers. May 3 to 5. Open-hearth committee meeting, Hotel Statler, Buffalo. H. Foster Bain, 29 West Thirty-ninth Street, New York, secretary.

Chamber of Commerce of the United States. May 3, 4 and 5. Fifteenth annual meeting, Washington.

Metal Branch of the National Hardware Association. May 5 and 6. Sixteenth annual meeting, Hotel Cleveland, Cleveland. George A. Fernley, 505 Arch Street, Philadelphia, secretary.

Taylor Society. May 9 and 10. Spring meeting, Hotel Powhatan, Washington. R. S. Person, 29 West Thirty-ninth Street, New York, managing director.

American Hardware Manufacturers Association. May 10 to 14. Spring meeting, Memphis, Tenn. Charles F. Rockwell, 342 Madison Avenue, New York, secretary.

American Gear Manufacturers Association. May 12 to 14. Eleventh annual meeting, Hayes Hotel, Jackson, Mich. T. W. Owen, 2443 Prospect Avenue, Cleveland, secretary.

American Drop Forging Institute. May 17, 18 and 19. Annual convention, French Lick Springs Hotel, French Lick, Ind. Donald McKaig, 1001 Union Bank Building, Pittsburgh, secretary.

American Refractories Institute. May 18 and 19. Spring meeting, Hotel Traymore, Atlantic City, N. J. Dorothy A. Texter, 2202 Oliver Building, Pittsburgh, secretary.

National Industrial Conference Board. May 19. Eleventh annual meeting, Hotel Astor, New York.

American Society for Steel Treating. May 19 and 20. Sectional meeting, Milwaukee, Wis. W. H. Eisenman, 4600 Prospect Avenue, Cleveland, secretary.

American Iron and Steel Institute. May 20. Annual meeting, Hotel Commodore, New York. E. A. S. Clarke, 75 West Street, New York, secretary.

American Steel and Heavy Hardware Association. May 23 to 25. Eighteenth annual convention, Hotel Cleveland, Cleveland. Benjamin R. Sackett, 503 Arch Street, Philadelphia, secretary.

American Society of Mechanical Engineers. May 23 to 26. Annual spring meeting, Greenbrier Hotel, White Sulphur Springs, W. Va. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

Associated Machine Tool Dealers. May 25 to 27. National convention, Granville, Ohio. T. W. Carlisle, Strong, Carlisle & Hammond Co., Cleveland, secretary.

National Foreign Trade Council. May 25 to 27. Fourteenth annual meeting, Detroit. O. K. Davis, India House, Hanover Square, New York, secretary.

Society of Industrial Engineers. May 25 to 27. Fourteenth national convention, Hotel Stevens, Chicago. George C. Dent, 608 South Dearborn Street, Chicago, secretary.

Society of Automotive Engineers. May 25 to 28. Spring meeting, French Lick Springs Hotel, French Lick, Ind. C. F. Clarkson, 29 West Thirty-ninth Street, New York, general manager.

Metal Branch of National Hardware Association to Meet

On May 5 and 6 will occur the sixteenth annual meeting of the Metal Branch of the National Hardware Association of the United States. The meeting will be held in the Hotel Cleveland, Cleveland. George A. Fernley, 505 Arch Street, Philadelphia, is secretary. Among the addresses to be delivered are the following:

"Business of Financial Conditions," by George DeCamp, chairman Federal Reserve Bank of Cleveland.

"Some Thoughts Regarding the Sheet Steel Industry," by C. E. Stewart, president Central Alloy Steel Corporation, Massillon, Ohio.

"How Can the Distribution of Sheet Metals Be Made More Profitable?" A general discussion or symposium.

"The Work of the National Committee on Metals Utilization," by W. C. Wetherill, director metals utilization, Department of Commerce, Washington.

"The Sheet Steel Home," by Bennett Chapple, director of publicity American Rolling Mill Co., Middletown, Ohio.

"How Can the Distribution of Sheet Metals Be Made More Profitable?" Symposium led by F. A. Moeschl, Newport Rolling Mill Co., Newport, Ky.; Robert H. Lyon, Lyon Conklin & Co., Baltimore; F. A. Wilkening, Standard Metal Co., Indianapolis, and H. E. Nickerson, Congdon & Carpenter Co., Providence.

"Disposition of Seconds—Is the Work of the Mills in This Connection Proving Effective in Preventing the Deception of the Consuming Public?" General discussion.

"Present Extras for Corrugating—Are They Equitable?" General discussion.

"Our Revised Plan of Action," by Harry S. Rogers, director sales and promotion, Sheet Steel Trade Extension Committee.

"What New Lines of Material Can Be Added Profitably by Distributers?" General discussion.

"Non-Ferrous Metal Market." General discussion.

"Has Hand-to-Mouth Buying Been Overdone?" Symposium led by A. M. Oppenheimer, Apollo Steel Co., Apollo, Pa., and J. B. Roberts, assistant general sales manager Youngstown Sheet & Tube Co., Youngstown.

"Eaves Trough and Conductor Pipe Situation." General discussion.

Simplification will be discussed on Thursday afternoon in the shape of statements from the chairmen of three boards, as follows:

Sheet Steel Simplification Board of Review, Walter C. Carroll, chairman, Inland Steel Co., Chicago.

Terne Plate Simplification Board of Review, L. D. Brueckel, chairman, Weirton Steel Co., Weirton, W. Va.

Eaves Trough and Conductor Pipe Board of Review, Louis Kuehn, chairman, Milwaukee Corrugating Co., Milwaukee.

Meeting on Machine Shop Practice at New Haven

The Machine Shop Practice Division of the American Society of Mechanical Engineers will hold its first national meeting at New Haven, Conn., Sept. 6 through 9. The sessions will be held during the seventh annual New Haven Machine Tool Exhibition, which is being conducted under the auspices of the New Haven section of the A.S.M.E., Yale University, and the New Haven Chamber of Commerce.

The program of sessions, which will be held during the mornings of the exhibition, will embrace such topics as the selection of machine tool equipment, new methods of finishing machinery, training of foremen, working of metals, and the design of machinery for the use of anti-friction bearings. In addition to the technical sessions, there will be a series of informal dinner conferences on topics related to machine shop practice and machine design.

The emphasis of the sessions will be placed upon the importance of utilizing modern equipment for the increasing of operating economies throughout industry.

Foundry Equipment Makers to Study Simplification and Standardization

One of the principal features of the spring meeting of the Foundry Equipment Manufacturers Association, which was held at the Riverside Hotel, Cambridge Springs, Pa., April 21 and 22, was an address by R. L. Lockwood, National Committee on Metals Utilization, Department of Commerce, Washington, entitled "What a Simplification Program Could Accomplish for Manufacturers of Foundry Equipment." Mr. Lockwood's remarks led to considerable discussion and to the passage of a resolution authorizing the president of the association to appoint a committee to investigate possibilities of effecting savings in manufacture through simplification and standardization in the foundry equipment industry. S. C. Vessy, W. W. Sly Mfg. Co., Cleveland, was made chairman of this committee. He will be assisted by N. S. Lawrence, Whiting Corporation, Harvey, Ill., and R. T. Turner, Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.

E. F. DuBrul, general manager National Machine Tool Builders Association, Cincinnati, outlined some of the work which this organization has accomplished for its members. He pointed to the recently adopted standard milling machine spindle end as an example of what manufacturers may accomplish by group action.

The reports on business conditions discussed at the meeting indicated that sales were fully as satisfactory during the first quarter of this year as in 1926.

An elaborate and exceedingly interesting report on sales methods and policies was presented by J. S. Sammons, Beardsley & Piper Co., Chicago.

Safety Meeting at Newark

Members of the American Society of Safety Engineers met in Newark, N. J., April 27, with members of several local organizations interested in the safety movement, in the third annual Eastern Safety Conference. Among the speakers were E. W. Kopf, Metropolitan Life Insurance Co., New York; John B. Grier, safety supervisor, American Car & Foundry Co., Wilmington, Del.; Stanley Coleman, assistant superintendent, Elizabeth Foundry Co., Elizabeth, N. J.; A. R. Bush, plant superintendent, Barber Asphalt Co., Maurer, N. J.; William Donovan, plant superintendent, Standard Oil Co., Bayway, N. J.; H. G. Dean, chief inspector of plant, Western Electric Co., New York.

Gray Iron Group Meets in Milwaukee

The second regular monthly meeting of the Wisconsin Gray Iron Research Group was held at the Republican House, Milwaukee, on Wednesday evening, April 6. Fifty Wisconsin foundrymen who are cooperating in research work sponsored by the University of Wisconsin sat down to dinner and entered into the discussion that followed.

W. J. MacNeill, superintendent Federal Malleable Co., West Allis, Wis., explained the point system of rate setting and illustrated his talk by means of typical castings. Prof. Scott Mackay of the university discussed the relation between pouring time and weight of castings, basing the discussion on a paper presented by H. W. Dietert at the last convention of the American Foundrymen's Association. The original paper was reviewed, and its results compared with new figures obtained in two Wisconsin foundries.

The Gas Products Association, having headquarters at 140 South Dearborn Street, Chicago, and composed of manufacturers of oxygen, acetylene, hydrogen, welding and cutting apparatus, accessories, supplies, etc., located throughout the United States, have recently completed two reels of welding and cutting films. Prints of the films are available to organizations desiring to show them before audiences, by making application to the association secretary.

Attempt to Put Coal Mines on Open Shop Latest Strike Development

PITTSBURGH, April 26.—With the Pittsburgh Terminal Coal Co. making an attempt to operate one of its mines at Cloverdale, Pa., on an open shop basis and the Valley Camp Coal Co. also making plans for starting up its Big Kinlock mine near Oakmont, Pa., on the November, 1917, wage scale, the coal strike is beginning to take on a more lively aspect. Both of these companies signed the Jacksonville scale of the United Mine Workers of America and until April 1, last, had operated as union units.

Except for these developments, the fact that there is a strike is not readily discernible, because there is no shortage of coal nor market excitement. Consumers prepared so well in the matter of reserve supplies for the strike that there is not a market for even the reduced production of coal and prices are as weak as they ever were in times of normal production and light demand.

With mine run coal selling as low as $1.25 f.o.b. northern West Virginia mines, there is some doubt that even present production can be maintained profitably and the suggestion now is being heard that wage reductions may be necessary to enable some mines to keep operating.

Central Pennsylvania coal is reported to be feeling the competition of West Virginia coal and doubt is expressed that the mines in the former region which still are paying the union scale can stand the competition, which amounts to as much as $1 per ton.

Unless there is a quickening in the demand that will prevent either curtailment of present production or wage reductions a strike in the non-union districts, which is more feared than any other development in this dispute, may not be as far off as many believe.

The majority opinion here is that the strike is not beaten and that its leaders are content that the struggle should be passive through the summer and bring the winter expansion in demand to their assistance.

Foundry Equipment Bookings Decline

March sales by members of the Foundry Equipment Manufacturers' Association, Cleveland, totaled $508,531 as compared with $684,836 for February, or a loss of 25 per cent. March sales were also 10 per cent less than the total for the same month in 1926. Shipments in March, at $603,735, showed a gain of 25 per cent as compared with February deliveries and a loss of 4 per cent compared with March, 1926. Orders on hand April 1 totaled $995,075, or a loss of 8 per cent compared with the figure for March 1. Total sales for the first quarter of 1927 showed a gain of 1 per cent over those for the same period in 1926.

Machinery House Gives Up Branch Offices

Manning, Maxwell & Moore, Inc., dealer in machine tools, New York, is abandoning its branch offices at Cleveland, Buffalo, Pittsburgh and Philadelphia. At Pittsburgh the company will close its office May 1, and the machine tool business in the Pittsburgh district will be handled by the Arch Machinery Co., which has been organized by those who have composed the executive and sales personnel of the Pittsburgh branch. Present offices at 1005 Park Building will be retained by the new organization, which is headed by Norman Allderdice, who has been vice-president and Pittsburgh district manager. With him will be associated J. R. Hussey, heretofore Pittsburgh district sales manager, and H. W. Cross and T. M. Rees, members of the machinery department sales force. Sales of steam specialties manufactured by Manning, Maxwell & Moore, Inc., will be handled from the East, but there has been no announcement yet as to the company's plans of handling crane sales in the Pittsburgh territory. The Manning company is the owner of the Shaw Crane Works, Muskegon, Mich.

No changes will be made in the Chicago branch of Manning, Maxwell & Moore except that it will be made a billing and invoice office for the Chicago and St. Louis districts. The name will remain unchanged, and the Chicago personnel will stay intact.

Malleable Castings Production Falls

WASHINGTON, April 25.—Production of malleable castings in March totaled 66,372 tons, against 57,380 tons in February, according to reports received by the Department of Commerce from 134 identical plants. Four plants with an aggregate monthly capacity of 3700 tons were idle in March. Three others revised their reports for January and February. Shipments in March amounted to 64,652 tons, compared with 54,641 tons in February, while orders booked were 53,597 tons and 58,039 tons, respectively. Operations in March were at the rate of 62.2 per cent of capacity, based on a monthly capacity of 106,698 tons. This compares with 54.8 per cent of capacity in February.

March production was the largest since last April, when the total was 66,733 tons. In March, 1926, production was 74,520 tons. March shipments, also, were the greatest since last April's 66,326 tons. In March, 1926, shipments were 70,193 tons.

For the first quarter the reduction below 1926 has been 19 per cent in production, 11 per cent in orders and 11 per cent in shipments. Production dropped from 216,579 tons to 175,244 tons; shipments, from 189,008 tons to 168,635 tons; new orders booked, from 182,921 tons to 162,630 tons.

Exports of Farm Implements Increase in March

WASHINGTON, April 26.—Exports of agricultural implements from the United States in March, 1927, were greater than shipments abroad in any preceding month of this year or last year except August, 1926, according to the Agricultural Implements Division, Department of Commerce. March exports were valued at $8,743,621 and represented an increase of more than $3,000,000 over February exports, more than $4,000,000 over exports in January of this year and a gain of more than $800,000, over similar exports, totaling $7,913,236 in March, 1926. Exports of farm implements in August, the record month of 1926, were approximately $50,000 in excess of shipments in March of the present year.

Foundry Industry to Get Help of Department of Commerce

A survey of the foundry situation will be undertaken by the Department of Commerce with a view of rendering assistance in attempting to improve unsatisfactory conditions mainly growing out of the over capacity of the foundry industry, according to an announcement issued by the Ohio Steel Foundrymen's association to its members. The Board of Administration of the association, which has had this matter under consideration, decided to ask the cooperation of the Department of Commerce and officers of the Ohio association met with representatives of that department in Washington last week, and discussed the matter in detail.

At the same time the subject of the standardization of grades and specifications of foundry coke as well as methods of testing by-product foundry coke was discussed with R. M. Hudson, chief of the Division of Simplified Practice; and this subject will be taken up by that division.

New Record in Gold Production

Output of the Transvaal mines in March is reported in London *Economist* at 860,511 fine ounces—the largest total for any month on record. For the first quarter the total was 2,479,632 ounces, the largest first quarter on record, but considerably below each of the three succeeding quarters of 1926, which year furnished a new high record in aggregate production.

Continental Steel Corporation, Just Formed, Will Increase Steel Capacity

Plans for the consolidation of the Superior Sheet Steel Co., Canton, Ohio, the Kokomo Steel & Wire Co., Kokomo, Ind., and the Chapman-Price Steel Co., Indianapolis, Ind., have been completed subject to the approval of the stockholders. The three companies are to be merged in a new corporation to be known as the Continental Steel Corporation, with a capital stock of $15,000,000. Stock of the three companies will be exchanged for common and preferred stock in the new corporation on the basis of inventories and appraisals of the three plants. It is stated that the necessary financing for plant extensions and improvements has been underwritten.

Henry A. Roemer, president of the Superior Sheet Steel Co., will be president of the consolidated company; J. E. Frederick, secretary and general manager of the Kokomo company, will be chairman of the board; Niles Chapman, president of the Chapman-Price company, will be chairman of the executive committee and D. A. Williams, vice-president and general manager of the Superior company, will be vice-president in charge of operations. Other members of the Superior organization will be active in the new company.

The Superior and Chapman-Price plants will secure their semi-finished steel from the Kokomo plant, which has open-hearth furnaces with an annual capacity of 180,000 tons and an electrically-driven blooming mill with an annual capacity of 400,000 tons and an output of steel products including billets, wire rods and wire products of approximately 120,000 tons per year. To take care of the requirements of the other two plants, the ingot capacity of the Kokomo plant will be increased to 250,000 tons annually, and a sheet bar mill will be added.

The Superior plant manufactures black and galvanized sheets and has an approximate capacity of 70,000 tons per annum. The Chapman-Price plant manufactures black and galvanized sheets and has an output of about 40,000 tons per annum. It also has a fabricating department.

General offices of the new company will be at Kokomo.

Rock Run Charcoal Furnace Not to Be Abandoned

The report published in THE IRON AGE, April 14, page 1116, under the title "Old Alabama Charcoal Furnace to Be Abandoned," is denied by the Bass estate at Fort Wayne, Ind. The company expects to blow out the furnace in the near future as it has done many times in the past, but there is no intention of abandoning the furnace. Conditions are such that a stock of iron has accumulated and the company emphasizes that it is therefore able to take care of its customers as in the past.

Sells Its Storage Battery Business

The Prest-O-Lite Co., Inc., announces the sale of the storage battery branch of its business to a new company, the Prest-O-Lite Storage Battery Corporation. The entire capital stock of the purchasing company is owned by the Automotive Battery Corporation of New York. That portion of the Indianapolis plant of the Prest-O-Lite Co., Inc., used for the manufacture of storage batteries, has been leased to the new company.

The Prest-O-Lite Co., Inc., while discontinuing the battery branch of its business, will continue the manufacture and sale of acetylene gas for use in the oxy-acetylene process of welding and cutting metals, automobile lighting, lead burning, etc. These operations have, in the past, constituted the major portion of its activities. In addition to continuing its acetylene business, involving the operation of 32 acetylene plants, located in industrial centers throughout the country, the Prest-O-Lite Co., Inc., will continue operation of that portion of its Indianapolis plant devoted to the manufacture of gas cylinders, acetylene generators and other apparatus.

Sydney Plant of British Empire Steel Corporation Not to Shut Down

SYDNEY, N. S., April 25.—The Sydney steel plant of the British Empire Steel Corporation will continue to operate, regardless of liquidation proceedings, according to a statement sent by M. Brocklebank, in charge for the National Trust Co., to W. E. Rundle, Toronto, general manager of the company. The message read as follows: "The recent application in Halifax to wind up the British Empire Steel Corporation and the Dominion Steel Corporation, in no way affects the operations at Sydney, N. S., and Wabana, Newfoundland, of the Dominion Iron & Steel Co., by the National Trust Co., as receiver and manager. Therefore these operations are proceeding as usual."

Genesee Furnace to be Abandoned

The Genesee blast furnace at Charlotte, N. Y., owned by the Corrigan, McKinney Steel Co., Cleveland, went out of blast last week and will not again be operated, at least by that company. The plant will probably be scrapped and the site sold. This furnace was originally built in 1868 and rebuilt in 1908. It had an annual capacity of 110,000 tons. It had been operated only a portion of the time during the last few years.

Krupp Works Develops Improved Stainless Steel

HAMBURG, GERMANY, April 11.—Friedrich Krupp A. G. at Essen, which has patents on stainless steel and manufactures it under the trade name "Nirosta," has made recent improvements in the product so that it takes an edge as well as carbon steel. As production methods are perfected, it is expected that the price will be considerably reduced.

According to a recent statement issued by the Krupp works, "the sale of stainless steel is growing and this department of the works is rather busy at present. However, it is noticeable that the home trade market is not so good for stainless steel products as foreign markets." Although sales were large at first, the fact that stainless steel cutlery was difficult to sharpen was apparently a considerable factor in the slow German domestic trade.

Bethlehem's Grey Mills at Lackawanna

As was briefly stated in last week's issue of THE IRON AGE, the Bethlehem Steel Co. has started up its new Grey structural mills at its Lackawanna plant, Lackawanna, N. Y. There are two mills similar to those at the Bethlehem, Pa., plant for making wide flange structural sections, the breaking down being done on a 54-in. blooming mill. The rolling schedule of the new mills covers a full range of Bethlehem beams, girders and columns.

Construction of the new plant was begun 11 months ago and the first steel was shipped on April 12. Water shipments to cities in the Middle West and on the Atlantic seaboard are possible because of the location of the mill on the Great Lakes.

Puddling Rates Remain Unchanged

Tonnage rates for puddlers and bar iron workers in mid-western mills operating under the sliding scale wage agreement of the Amalgamated Association of Iron, Steel & Tin Workers continue unchanged for May and June from the rate paid in March and April, following the bi-monthly examination of sales sheets. The average price of bar iron shipped during the 60 days ended April 20 was disclosed as 1.95c. per lb. Boilers receive $11.13 per ton.

Total apparent consumption of babbitt metal in March, based on reports received by the Department of Commerce from 27 firms, was 5,157,600 lb., compared with 4,574,931 lb. in February and with 5,860,543 lb. in March, 1926.

STEEL COMMON AT 7 PER CENT

Dividend Declared on Enlarged Issue, With Quarter's Earnings at $11.25 Rate

The enlarged common stock issue of the United States Steel Corporation, amounting to 7,116,235 shares outstanding (as the result of the vote of the stockholders at the recent annual meeting authorizing a stock dividend of 40 per cent), was awarded a 7 per cent cash dividend at a meeting of the directors of the corporation in New York on April 26. The payment of the stock dividend will be made June 1 to stockholders of record on May 2, while the cash dividend on common stock is payable June 29 to stockholders of record June 7. The statement of earnings for the first quarter of the year, here tabulated, show earnings per share of common stock, after deducting dividends on the preferred stock, of $2.81 for the quarter, equivalent to $11.25 per annum. The earnings on the basis of the former stock issue amounted to $3.94 for the quarter, against $3.89 for the first quarter of 1926.

Earnings before making deductions for depletion, depreciation, sinking funds and other charges, amounting to $45,585,000, compare with $45,061,000 for the first quarter of last year. The increase was registered in the face of prices on finished steel averaging 87c. a ton less in the recent quarter than in the first quarter of 1926, according to THE IRON AGE composite price, and in the face of a 2 per cent drop in the total ingot production for the country, comparing the outputs of the two quarters.

Compared with the fourth quarter of last year, earnings showed a drop of $7,918,000. The amount per share of the older common stock was $4.89 for that period.

The surplus for the past quarter was $7,569,000, while that for the first quarter of 1926 was $10,875,000. The ratio of the common stock dividend to the quarter's surplus was 1.65 to 1, while that for the corresponding quarter a year ago was 0.82 to 1.

EARNINGS IN RECENT YEARS

Quarters	1927	1926	1925	1924
First	$45,584,725	$45,061,285	$39,882,992	$50,075,445
Second	.....	47,814,105	40,624,220	41,381,039
Third	.....	52,626,826	42,400,419	30,718,415
Fourth	.....	53,502,525	42,630,840	30,939,912

EARNINGS FOR FIRST QUARTER

	Earnings Before Charging Interest on the Subsidiary Companies' Bonds Outstanding	Less: Interest on the Subsidiary Companies' Bonds Outstanding	Balance of Earnings
Jan., 1927	$14,188,189	$675,402	$13,512,787
Feb., 1927	15,618,597	675,292	14,943,305
Mar., 1927	17,803,559	674,926	17,128,633
	$47,610,345	$2,025,620	

Total earnings after deducting all expenses incident to operations, also estimated taxes and interest on bonds of the subsidiary companies		$45,584,725
Less, charges and allowances for depletion and depreciation, applied as follows:		
To depletion and depreciation and sinking funds on bonds of subsidiary companies	$11,858,544	
To sinking funds on United States Steel Corporation bonds	2,801,843	
		14,660,387
Net income		$30,924,338
Deduct: Interest for the quarter on United States Steel Corporation bonds outstanding	$4,238,894	
Premium on bonds redeemed	358,082	
		4,596,976
Balance		$26,327,362
Dividends:		
Preferred, 1¾ per cent	$6,304,919	
Common, 1¾ per cent	12,453,411	
		18,758,330
Surplus for the quarter		$7,569,032

Iron and Steel Institute Announces Program for May Meeting

The thirty-first general meeting of the American Iron and Steel Institute will be held at the Hotel Commodore, New York, on Friday, May 20. There will be the usual sessions, morning and afternoon, at which Judge Elbert H. Gary will give his address and technical papers will be read. This will be followed by a banquet in the evening. The technical papers scheduled are as follows:

"Commercial Application of Welding to a Steel Structure," by J. H. Edwards, assistant chief engineer American Bridge Co., New York.

"Centrifugal Casting Processes," by John D. Capron, research engineer United States Cast Iron Pipe & Foundry Co., Burlington, N. J.

"Behavior of Large Hearth Furnaces," by J. E. Lose, superintendent Carrie Furnaces, Carnegie Steel Co., Rankin, Pa.

"The Pilger Tube Mill of the Pittsburgh Steel Products Co.," by W. C. Sutherland, general superintendent Pittsburgh Steel Co., Monessen, Pa.

"The Theory of the Blast Furnace," by Richard Franchot, Ferro-Chemicals, Inc., Washington.

"The Gas Permeability of Refractory Bricks Used in Metallurgical Furnaces," by F. A. Wickerham, Central Research Bureau, Carnegie Steel Co., Pittsburgh.

"Management's Part in Prosperity" Theme of Management Week

"Management's Part in Maintaining Prosperity" is to be the theme of Management Week, which is scheduled for Oct. 24 to 29. The national organizations that sponsored Management Week last year were the American Society of Mechanical Engineers, the Society of Industrial Engineers, the American Management Association, the Taylor Society and the American Institute of Accountants. This year there will be added to this group the National Association of Purchasing Agents, the National Foremen's Association and possibly some others. Last year's Management Week met with nation-wide support from business men, managers, engineers and other executives. Out of 116 cities where the week was observed, 64 reported 252 meetings with aggregate attendance of over 30,000, who listened to and discussed reports on "Progress in Waste Elimination."

The first Management Week was held in 1922, and it has been repeated each year with steadily increasing support. Last year's response was double that of 1925. This year the secretary of the National Committee on Management Week is Ray M. Hudson, chief of the division of simplified practice, United States Department of Commerce.

A Dwight & Lloyd Patent Decision

Judge Thacher in the Southern District of New York has handed down his opinion in the suit brought by the Dwight & Lloyd Sintering Co. against John E. Greenawalt. The suit was brought on nine patents owned by the Dwight & Lloyd company. The court for the purpose of his decision assumed the validity of the broad Dwight & Lloyd patents and said that the Dwight & Lloyd process "is superior to any method of the prior art for preparing fine ores for treatment in a blast furnace." The court held, however, that the delay in bringing suit prevented any recovery of damages against Greenawalt as to the early patents and that proof of infringement as to one of the patents was not satisfactory and as a result the bill was dismissed.

The counter claim filed by Greenawalt was decided at the same time. The court followed the prior decisions of the Court of Appeals of the District of Columbia and of the Ninth Circuit and dismissed the Greenawalt claim.

The decision, it would appear, leaves the situation substantially unchanged so far as the operating plants are concerned.

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Course of Steel Demand

IN recent years steel has fallen into a seasonal swing and the experience has not been long enough to supply measures of the amount of seasonal variation. In time farther back there were "buying movements" which had certain favorite months for their inception, but once started ran through various seasons of the year. It would make for trade stability if the seasonal movements to which the trade has lately become addicted were better understood. Then an increase in steel buying in January would not be hailed as proof that the whole calendar year was marked for good things nor would a decrease in April be held to portend badly for all the remainder of the year.

The last steel buying movement typical of the older times culminated early in 1923. The Steel Corporation's unfilled obligations reached a peak on March 31, 1923, of 7,403,332 tons and then declined with but one small interruption for sixteen months. Steel production reached a peak in April and declined successively month by month throughout the remainder of the year.

There was nothing seasonal about that. But three years followed with seasonal swings so plainly marked as to mean something very definite. In each of those years March was the peak month, with successive declines into July, recovery beginning by August. Then variation began. In 1924 the increase continued through December. In 1925 it continued into November, while December showed a decrease. In 1926 it continued only into October, November and December showing successive decreases.

Thus, while experience has not yet shown us precisely what we should expect as to the course of steel late in a year, it has shown us clearly what we should expect for several months after March, a decrease into July and then a recovery in August. If something different occurs we may regard it as due to special conditions pertaining only to the particular year.

Early this year arguments were offered that the course would be different this time. One argument was that buyers had grown more conservative, so that the peak of demand would be thrown later in the year, say in April or May. Another was that the coal strike would cause buyers to carry stocks of steel and thus more would have to be bought.

Yet steel demand and steel production have turned downward since March as they did in the preceding years that have exhibited the seasonal movement. It would remain then to measure the decrease to be expected from precedent so as to observe whether this year develops any departure. Unfortunately, while experience indicates the direction of movements it does not indicate the extent. The rate in the peak month, March, was approximately the same in the three years, 1924, 1925 and 1926, being respectively in daily ingot rate 161,796 tons, 161,321 tons and 166,236 tons. Rates in July varied widely, however, being 72,223 tons in 1924, 118,634 tons in 1925 and 140,425 tons in 1926. This year March showed much the same production, 168,867 tons, as March in the preceding years; but what would be the expectancy for July?

We may reject the low July of 1924 as suggestive, because 1924 was the oil scandal and presidential year. In 1925 there may have been overproduction with some liquidation in summer. Taking 1926 as the better criterion, we may allow for some extra production in March in anticipation of the coal strike, a slight special decrease in steel consumption due to coal trade inactivity and another loss from 1926 in greatly decreased oil and gas well drilling. If steel production next July is not so much below March as was the case last year, it will be due to other industrial conditions being more favorable than last year.

MANGANESE rails have stepped into new prominence, the statistics showing the production of 15,191 tons in 1926. In its issue of Feb. 4, 1926, THE IRON AGE gave facts concerning a new manganese steel rail containing 1.25 to 1.75 per cent manganese, of which the Delaware, Lackawanna & Western Railroad had made trial use in service. In later comment in these columns it was stated that several other roads had ordered rails of this composition. The

statistics for 1926 reveal in part the extent of the adoption of this rail. The 15,191 tons reported for last year, probably largely this type of rail, compare with only 2323 tons of manganese steel rails in 1925, with 3471 tons in 1924 and with 1720 tons in 1923. It is evident that this rail, which is heat-treated, is growing in favor and the results of its use in service will be watched with unusual interest.

The Sheet Mill Labor Factor

IT is a matter of current comment that the demands the Amalgamated Association of Iron, Steel and Tin Workers will present to the sheet and tin plate manufacturers for the year beginning July 1 are modest compared with those of recent years. Few wage increases are proposed and these mostly cover jobs that have yielded the workmen wages disproportionate with those of other members of the crew or with the amount of work performed. Formerly when wage advances were called for they not only covered the whole crew but fell in with the formula that if much more than was expected was not asked, nothing would be obtained.

The reasons for the more moderate demands of the association this year make an interesting speculation. While the bi-monthly wage settlements between the association and the signatory companies govern the wage scales of about 75 per cent of the sheet and tin plate capacity of the country, manufacturers who actually sign the Amalgamated scale represent less than 25 per cent of the sheet-making capacity and less than 20 per cent of the tin plate mills. It may be that the association committee did not care to risk losing more of the companies signing the scale, or, putting it another way, was loath to impose upon such companies conditions that might work to the advantage of those operating on an open shop basis.

Probably neither of these considerations had as much influence as the advent of the continuous rolling of sheets at two or three plants and the possibility that mechanical methods will come into more general use at no distant date, with consequent reduction in the requirement for manual labor.

Check to Iron and Steel Imports

A MARKED contraction in our imports of iron and steel has taken place in the last few months. The shrinkage noticed late in 1926 has gone on at an accelerated rate, as appears from the statistics for the first quarter published on other pages. Total imports, which, in 1924, exclusive of scrap, were 41,600 gross tons per month, more than doubled in the next two years, being 85,400 tons per month in 1926. For the first quarter of this year the average is 53,000 tons per month, or a decline of 38 per cent from that of last year.

The falling off is almost entirely due to the setback foreign pig iron has had in this market, particularly on the Atlantic seaboard. In the first quarter the receipts averaged only 7100 tons per month, as against a monthly average of 37,100 tons throughout 1926. For the present the menace of foreign competition is absent, partly because of the movement against dumping of low-priced European iron and partly because the costs of foreign producers have advanced simultaneously with the development of more strenuous competition among our own blast furnaces supplying the Eastern market. The increase of 37½ cents in the pig iron duty was scarcely a factor in the first quarter imports.

Steel manufacturers will find some satisfaction in the first quarter statement of rolled and finished steel imports in that, instead of the increased influx of foreign steel predicted in some quarters, there has been some falling off, even though small. While for the entire year 1926 the monthly average was 32,800 tons, the first quarter of this year shows an average of 31,400 tons. Continental steel was moving in large volume into Great Britain throughout the long coal strike, and increased pressure upon this market was to be expected from German, French and Belgian producers after British works got under way again. The first quarter figures seem to indicate, therefore, that the action of the Treasury Department in raising the dumping issue has not been without its effect.

Steel Prices and Small Lot Buying

COUNTING five and one-half selling days to the week and finished steel shipments averaging 30 net tons to the car, the steel industry is selling at the rate of about 5000 carloads a day when it is sustaining a 90 per cent operating rate, i.e., a steel ingot producing rate of about 50,000,000 gross tons per annum.

Except in a few cases in which large lots are purchased, the sales run chiefly to small lots, down to single carloads, and they do not stop at full carloads. The exceptional cases, of large lots, include orders for line pipe, for fabricated steel jobs, rails for the steam roads, and various instances of large consumers taking substantial lots at a time. Even in the case of some large consumers, however, there is much small lot buying. It would not be feasible to attempt to estimate closely the total number of individual orders booked in a day to make up the quota of 5000 carloads of shipments, but it is obvious that the number is large and that constant activity on the part of sales forces is necessary.

This fact is often referred to by steel sellers, occasionally by way of complaint, but more commonly merely by way of stating an interesting fact. There is represented a sweeping change from the condition existing before the war, and continuing to an extent for more than four years after the war. The last very important movement in large lot buying, for extended delivery, ended early in 1923. Since then small lot buying has been increasing in vogue so that it has become the more common practice, large lot buying becoming the exception.

Attention has already been called to the important point that the change in style has acted as a preservative to steel prices, but the fact is being realized more clearly at the present time. For a long time there has been strenuous competition for steel orders. The fact was mentioned by Chairman Gary at the Steel Corporation stockholders' meeting two years ago, the term used being "exceedingly strenuous." It became obvious from the circumstances that price cutting would not do, for as a rule the reward of a price cut would be only a few tons of business.

Under the old alinement, with a similar eager-

ness for tonnage, there would have been vastly stronger temptation to cut prices, either on general principles or on the specific principle that with a given large order in hand operations could be increased and production cost lowered.

It seems quite fair to estimate that in some finished steel products prices would now be several dollars a ton lower than they are if the old style of doing business in large lots had prevailed. Thus while there is more work involved in the new style there is a compensation. There is another item of theory that is not so satisfactory. It would seem that when sellers are doing a small lot business it would be easier for them to work prices upward when, as has been the case in several lines, higher prices are fully justified in relation to production costs. The individual seller takes little risk in quoting a higher price as he loses but little. In some instances plans to secure higher prices have involved a special sales effort for a time, to accumulate a backlog, and this effort has defeated the end. Such a procedure has been tried several times in the sheet market, with indifferent results.

British and American Income

ACCORDING to a survey by Prof. A. L. Bowley and Sir Josiah Stamp, Great Britain's most eminent statisticians, aggregate income from all sources in Great Britain and northern Ireland amounted to approximately $21,000,000,000 in 1924, against $11,000,000,000 in 1911. About 20,500,000 persons are gainfully occupied in Great Britain.

The number of persons in gainful occupation in Great Britain is slightly less than half that of the United States and their average annual income is much less. We must be cautious, however, in making comparison, for unfortunately there is now uncertainty about the American estimates owing to differences in bases of computation. We should know, therefore, as to the basis employed by the British statisticians, which may be different from any of ours.

Anyhow, in drawing deductions, due consideration should be given to the condition that Great Britain derives a larger proportion of its national income from foreign investments than does the United States.

Without drawing points too fine, there is no doubt that the average British worker receives less than the American for the simple reason that he produces less per man. His scale of living is correspondingly inferior.

CORRESPONDENCE

Call for Better Steel Rails

To the Editor:—The article by C. W. Gennet, "A Call for Better Steel Rails," in THE IRON AGE for April 14, page 1093, should be of great interest to railroad men. The writer was particularly interested in the statement that on a certain railroad, noted for accurate records, 65 per cent of the rail failures was of the head type and a majority of them occurred in the A-rails. Evidently conditions are no better in this respect than they were ten years ago, when it was shown by various investigations that this type of failure was generally due to segregation. It seems strange that the railroads do not yet appreciate the importance of avoiding segregation in rail steel, if the public really "demands safe traveling" as Mr. Gennet suggests.

There are discussed in this article several "existing conditions" that should be "changed by proper cooperation" with the object of securing safer rails. All of these points are undoubtedly worthy of attention, but one of the most important is barely mentioned, namely, "some practice insuring the making of sounder ingots." By "sounder," it is assumed that Mr. Gennet means more free from segregation as well as from actual cavities.

It has been shown conclusively, as the result of numerous extensive tests at various rail mills, that steel properly treated with titanium can be rolled into rails (including the A-rail) that were free from serious segregation of the type that has been found to account for most head failures. The titanium treatment of the steel is simple, involving no new equipment at the mill, practically no lost time, very little extra labor, and only moderate expense. Rails made of such steel have been shown by the railroads' own records to give fewer failures in track than ordinary rails.

The accompanying table illustrates the results obtained in actual service in track. This was compiled from data published in the American Railway Engineering Association Bulletin No. 81, covering all years from 1913 to 1918, inclusive.

In considering these results it is interesting to recall the statement of W. M. Wickhorst, engineer of tests of the rail committee, in a paper read before the American Society for Testing Materials, in June 1913, as follows:

> The conclusion seems to be, however, that for rails a well-deoxidized, quiet-setting steel must be used in order to avoid excessive segregation and to obtain a rail with a uniform hardness at the wearing surface in the several rails of an ingot. A solution of the ingot problem means the prevention of about half of the failed rails of the country.

The average failures per year in service per 100 miles of track for the untreated open-hearth rails, covered in the bulletin mentioned, were 14.3, while those for titanium-treated rails was 6.8. These results indicate that a solution of the ingot problem, referred to

Table of Service Results with Titanium-Treated Rail—Failures of Open-Hearth Rail Steel as Reported in A. R. E. A. Bulletin No. 81 of the Rail Committee for the Period Ended Oct. 31, 1918

	Mileage Reported Laid in—				Failures per 100 Track Miles—				Average Failures per Year in Service per 100 Track Miles
	1913	1914	1915	1916	1913	1914	1915	1916	
Titanium-treated rail	101.14	33.32	12.66	10.21	49.5	30.0	0.0	19.6	6.8
Carnegie—untreated rail	761.33	487.40	722.03	873.59	82.2	25.4	16.9	13.2	8.7
Colorado—untreated rail	1,205.68	1,047.82	1,030.66	1,172.01	82.1	27.3	15.1	15.7	9.0
Tennessee—untreated rail	1,788.25	1,848.70	1,005.90	1,197.84	57.3	44.2	30.5	37.1	12.7
Pennsylvania—untreated rail	617.63	271.13	161.30	47.75	71.2	38.0	27.9	46.1	14.0
Bethlehem—untreated rail	981.95	558.68	534.25	515.07	97.3	21.6	41.0	42.5	15.0
Algoma—untreated rail	.....	76.62	374.74	221.08	....	67.9	22.9	42.1	15.2
Lackawanna—untreated rail	1,379.17	746.61	732.50	942.87	115.3	51.0	38.8	25.5	15.3
Cambria—untreated rail	408.69	300.34	255.68	194.70	120.1	64.3	34.1	26.1	16.3
Illinois—untreated rail	3,002.97	1,472.04	1,890.44	2,476.75	96.2	83.4	40.9	26.0	16.5
Maryland—untreated steel	410.29	480.30	291.28	365.74	159.7	36.2	99.6	61.8	36.2
					5 years	4 years	3 years	2 years	

1913 mileage of titanium-treated rail was rolled as follows: Bethlehem, 13.21; Carnegie, 23.23; Illinois, 64.70.
1914 mileage of titanium-treated rail was rolled as follows: Lackawanna, 26.28; Illinois, 7.04.
1915 mileage of titanium-treated rail was rolled as follows: All at Lackawanna.
1916 mileage of titanium-treated rail was rolled as follows: All at Cambria.

by Mr. Wickhorst, was found in the use of ferro-carbon-titanium to deoxidize and cleanse the steel, as the failures for the titanium-treated rails in service were only 48 per cent of the average for ordinary open-hearth rails.

A method, therefore, is already at hand to accomplish at least some of the improvements called for by Mr. Gennet. The railroads have made very little use of it, and the results cited by Mr. Gennet seem to show that no other effective means of improving rail quality has been employed. Some action should be taken at once in this direction, at least for the sake of safety in transportation, even if the cost of replacing failed rails is not a serious matter.

GEORGE F. COMSTOCK.
Consulting Metallurgist.
Niagara Falls, N. Y., April 21.

Wage Demands of Amalgamated Association

Details of Scale Changes to Be Asked by Sheet and Tin Mill Workers Next Month—Advances General But Moderate

BAR iron, sheet and tin plate manufacturers signing the wage scale of the Amalgamated Association of Iron, Steel and Tin Workers will have comparatively moderate demands made upon them at the annual conference to be held next month, probably at Atlantic City. At least, a comparison of the 1926-27 scale and the wage committee report as adopted at the annual convention of the Amalgamated association at Granite City, Ill., so indicates.

Bar iron manufacturers are to be called on to pay advances in the boiling scale ranging from approximately 3½ per cent to more than 12 per cent, with an average of slightly more than 10 per cent. The boiling rates still start with $7 per gross ton on a card price of 1c. per lb., but advances are demanded over former rates on all card prices above 1c. per lb. The last bi-monthly wage settlement was on an average price of 1.95c. per lb. This under the old scale called for a boiling rate of $11.13 per gross ton; on the same price for bar iron, the proposed rate would be $13.65 per ton, an increase of slightly more than 11 per cent.

Hot-Weather Bonus Demand

On top of this demand is one calling for $1.50 per ton extra for boiling during July, August and September, which, using the last settlement basis, would mean a boiling charge for those months of $15.15, or more than 36 per cent in advance over the present scale.

Passing to the rolling mill men, there is a demand for a 10 per cent increase in the rates for muck roll crew and that this crew be paid the same rate as millwrights while changing rolls. A 10 per cent increase is asked also for the bar and guide mill crews; a guarantee of at least $5 per day for roughers and catchers on two-high bar mills and an increase of 2 per cent for the poke-ins and extra hooker. The men ask no change from last year's rates for busheling, either on cinder or sand bottoms, the piles on boards, knobbling and slab heating and shingling scales, and changes asked for in the scale of crews for mills specializing in pipe or skelp refer to working conditions rather than rates.

Direct demands for wage increases for the crews of sheet, jobbing and tin plate mills and of tin house men are few and for the most part represent an effort in the direction of a more equitable distribution of the total payment to the crews. There is a demand that for working steel or iron pickled in the rough on sheet, jobbing or tin mills, 25 per cent extra, instead of 20 per cent, shall be paid. In the double mill, loose rolling scale, an increase is asked of 10 per cent on the base of all jobs covered by the Amalgamated scale; that the company provide one extra man to help the roller and that matchers and catchers be given a 10 per cent increase, and an equalization of the pay of the catcher's helper on the roughing mill with that of the drag-up man on the same mill.

Influence of Change of Base Gage

The convention adopted a recommendation that "the next conference of the sheet and tin mill division shall propose to manufacturers that a sub-committee of both sides shall meet for the purpose of securing information during the ensuing year and working out an equitable average base selling price of all gages from No. 21 to No. 30, inclusive, upon which the 60-day settlements shall be made; this proposition to be presented again at the next convention, and, if agreeable to all concerned, to go into effect July 1, 1928."

In connection with this proposal, it will be recalled that, as of Sept. 1, 1926, manufacturers changed the base gage of sheets from No. 28 to No. 24 gage. But the wage settlements have continued to be based on the average prices of Nos. 26, 27 and 28-gage sheets, although prices of those gages were increased by the change in base gage and in the revision of the gage differentials.

A change also is proposed in one of the sheet and tin mill conference adjustments, which would make it possible to introduce propositions for consideration at the conference as late as the third Tuesday of the March preceding the conference. The rule hitherto has been that no proposition could be considered at the meeting of the wage committee of the association and the signatory manufacturers unless presented to the manufacturers on or before the third Tuesday of the January preceding the conference.

Tin Mill Changes All Upward

In the tin mill scale, a 20 per cent increase is asked for the doubler's helper on No. 20 gage and heavier; one of 10 per cent for the screw boy on No. 29 gage and lighter and for the heater and the heater's helper. In the three-part system, operating with the mechanical doubler, there is a demand for a 10 per cent increase for the mechanical operator single boy, screw boy and pair heater and that the catcher's rate be equal to the rougher's.

In the four-part system, when more than one heat is worked on the system, there is a request for the payment of the four-part scale to all members of the crew except the shearman and mechanical operator, but that the latter shall be paid 20 per cent extra. An increase of 10 per cent is asked for heaters and of 5 per cent for shearmen working the four-part system. In the tin house scale, the convention adopted a demand for an increase for the catcher on combination tin pots of from $6.27 per 100 base boxes on large plates to $6.49, and from $7.04 to $7.70 on small plates. It is requested also that catchers be given a 10 per cent increase for double rolling and that tinners on common ternes be raised 5 per cent.

The record time of 6 days and 8 hours recently was made by the steamer Aliquippa towing seven barges containing approximately 5000 tons of finished steel of the Jones & Laughlin Steel Corporation on a run from Pittsburgh to Memphis, Tenn. The tow left Pittsburgh on April 11 and reached Memphis, a distance of 1200 miles, on April 17. This betters the best previous time record for this trip of 7 days and 8 hours made in 1923, also by the steamer Aliquippa.

Iron and Steel Markets

Progressive Decline in Demand

Specifications Keeping April Output on High Level—Water Transportation a Factor in Pig Iron and Steel Sales —Large Increase in Imports

SALES of steel in April will show quite a drop from March, though the volume is still so large that it compares favorably with April of last year. The slower market has helped to bring a narrowing of price irregularities, resulting, however, in two or three definitely lower quotations.

Production of steel ingots for the general Pittsburgh territory, including the Valleys, is estimated at 80 per cent of capacity, a drop of 10 points in the month. Chicago district operations are put at only 2 per cent under the March peak, and the South, centered at Birmingham, has modified its pace but little. The indications thus are for a record breaking April output.

A factor in checking shipments and purchases has been the floods in the Mississippi Valley. Rain-soaked roads in the Northwest also have brought about postponements. Emergency calls for track material have come for the flood-stricken regions, which, of course, will need to buy later for repair and rehabilitation. If the coal strike is to be regarded as affecting demand, it is merely negative in that consumers are well covered by orders placed prior to April 1.

It is the flow of specifications against contracts more than new buying that is maintaining the high state of operations. Outstanding are the bookings of structural steel and tank material. An expansion in projects taking 50 to 300 tons has helped the smaller fabricating companies, which a month ago were at a 25 per cent operating basis. For oil storage tanks some 150,000 tons of plates are under consideration, including now the Wyoming field.

The Steel Corporation will furnish 13,000 tons of steel for the Bamberger department store in Newark and a leading independent fabricator has booked 11,000 tons for a Chicago office building. Other structural steel business brings the week's totals to 57,000 tons in awards and 31,000 tons in new projects.

Railroad buying included 1500 freight cars for the Pere Marquette and 300 for the Soo Line and 12 locomotives for the Burlington. Action on some 6000 cars for the Illinois Central may be postponed because of the Mississippi floods. The Pennsylvania Railroad has taken bids on six car floats requiring 3600 tons of plates and shapes. The Lehigh & New England is inquiring for 200 box cars.

Schedules of steel for the automobile trade indicate a better May output than was expected. Sheets, strip steel and bars are all adversely affected by the uncertainty in this large consuming industry. Sheet output is put at an 81 per cent rate against 93 per cent in March. Prices for early delivery are lower than for more extended shipment, but are substantially unchanged from those of recent weeks, save that black sheets are more common at 2.70c., Pittsburgh, and 2.75c., Ohio mill.

A steel bar demand much ahead of the corresponding period of April last year is reported from Chicago. In the East conditions have not prevented a wider acceptance of a 1.85c., Pittsburgh base, against 1.90c., which obtains usually only on the smaller orders. A 1.85c. base in Detroit is attributable to use of water transportation. The first cargo of several hundred tons left Buffalo this week for that city.

Leading makers of hot-rolled strips are naming prices which are a recognition of the competition of the heavier strips with blue annealed sheets, establishing 2.30c., Pittsburgh, for widths of 12 to 14 in. for Nos. 13 and 14 gages, and 2.40c. for Nos. 15 and 16 gages.

Bolt and nut plants, following heavy ordering in March, are at a 70 per cent producing rate, or higher than in more than a year and comparing with 55 per cent for all of 1926.

Opening of navigation on Eastern waterways has stimulated demand for pig iron for barge delivery. In the past fortnight pipe companies in the Philadelphia district have placed close to 40,000 tons for water shipment, dividing the business among eastern New York State and New England furnaces.

A gradual tapering of foundry operations continues to be reported at Cincinnati, Detroit and in the East. A threatened molders' strike at Chicago has resulted in suspensions of pig iron shipments. With buying light in most districts, prices show little change except at Cleveland, where foundry grade has declined 50c. a ton to $19, furnace, for local delivery and to $18, furnace, for shipment to competitive territories. Chicago iron is also weaker for outside deliveries.

Imports of iron and steel in March amounted to 61,872 gross tons. Of this amount 7492 tons was pig iron and 34,672 tons rolled and finished steel. The total represented a large increase from 49,460 tons in February, made up of 4417 tons of pig iron and 26,349 tons of finished steel.

Exports in March totaled 171,094 tons, about 1 per cent higher than in March, 1926. The figure is slightly above February, but otherwise the smallest since last June.

THE IRON AGE composite price for finished steel is down to 2.339c. a lb., from the 2.367c. level of the nine preceding weeks. This is the lowest point since August, 1922, and is just $2 a net ton below last year at this time. The pig iron composite price remains at $19.21 a ton for the fourth week.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

Pig Iron, Per Gross Ton:	Apr.26, 1927	Apr.19, 1927	Mar.29, 1927	Apr.27, 1926
No. 2, fdy., Philadelphia	$21.76	$21.76	$21.76	$22.76
No. 2, Valley furnace	18.50	18.50	18.50	19.00
No. 2, Southern, Cin'ti	21.69	21.69	21.69	25.69
No. 2, Birmingham	18.00	18.00	18.00	22.00
No. 2 foundry, Chicago*	20.00	20.00	20.00	22.00
Basic, del'd eastern Pa.	20.75	20.75	20.75	21.75
Basic, Valley furnace	19.00	19.00	19.00	18.50
Valley Bessemer, del'd P'gh	21.26	21.26	21.26	21.26
Malleable, Chicago*	20.00	20.00	20.00	22.00
Malleable, Valley	18.50	18.50	18.50	19.00
Gray forge, Pittsburgh	19.76	19.76	19.76	20.26
L. S. charcoal, Chicago	27.04	27.04	27.04	29.04
Ferromanganese, furnace	100.00	100.00	100.00	$8.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	36.00	36.00	36.00	32.00
Bess. billets, Pittsburgh	33.00	33.00	34.00	35.00
O.-h. billets, Pittsburgh	33.00	33.00	34.00	35.00
O.-h. sheet bars, P'gh	34.00	34.00	34.00	36.00
Forging billets, P'gh	40.00	40.00	40.00	40.00
O.-h. billets, Phila	39.30	39.30	39.30	40.30
Wire rods, Pittsburgh	42.00	42.00	43.00	45.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.90	1.90	1.90	1.90
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.12	2.12	2.12	2.22
Iron bars, Chicago	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh	*1.85*	1.90	1.90	2.00
Steel bars, Chicago	2.00	2.00	2.00	2.10
Steel bars, New York	*2.19*	2.24	2.24	2.34
Tank plates, Pittsburgh	1.85	1.85	1.85	1.90
Tank plates, Chicago	2.00	2.00	2.00	2.10
Tank plates, New York	2.19	2.19	2.19	2.24
Beams, Pittsburgh	*1.80*	1.90	1.90	1.90
Beams, Chicago	2.00	2.00	2.00	2.10
Beams, New York	2.14	2.14	2.19	2.24
Steel hoops, Pittsburgh	2.30	2.30	2.30	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

Sheets, Nails and Wire,	Apr.26, 1927	Apr.19, 1927	Mar.29, 1927	Apr.27, 1926
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 24, P'gh	*2.70*	2.75	2.75	3.10
Sheets, black, No. 24, Chicago dist. mill	2.95	2.95	2.95	3.20
Sheets, galv., No. 24, P'gh	3.60	3.60	3.65	4.05
Sheets, galv., No. 24, Chicago dist. mill	3.85	3.85	3.85	4.25
Sheets, blue, 9 & 10, P'gh	2.15	2.15	2.20	2.40
Sheets, blue, 9 & 10, Chicago dist. mill	2.35	2.35	2.35	2.60
Wire nails, Pittsburgh	2.55	2.55	2.55	2.65
Wire nails, Chicago dist. mill	2.60	2.60	2.60	2.70
Plain wire, Pittsburgh	2.40	2.40	2.40	2.50
Plain wire, Chicago dist. mill	2.45	2.45	2.45	2.55
Barbed wire, galv., P'gh	3.25	3.25	3.25	3.35
Barbed wire, galv., Chicago dist. mill	3.30	3.30	3.30	3.40
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$14.75	$14.75	$15.00	$16.00
Carwheels, Philadelphia	16.00	16.00	16.00	17.50
Heavy melting steel, P'gh.	*16.00*	16.50	16.75	16.00
Heavy melting steel, Phila.	14.50	14.50	14.50	15.50
Heavy melting steel, Ch'go	13.00	13.00	13.25	12.50
No. 1 cast, Pittsburgh	16.00	16.00	16.00	16.50
No. 1 cast, Philadelphia	17.00	17.00	17.00	17.50
No. 1 cast, Ch'go (net ton)	16.50	16.50	16.50	16.00
No. 1 RR. wrot., Phila.	16.50	16.50	17.00	17.50
No. 1 RR. wrot., Ch'go (net)	12.25	12.25	12.50	12.00
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$3.15	$3.15	$3.25	$3.00
Foundry coke, prompt	4.00	4.00	4.25	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	*13.25*	13.12½	13.37½	14.12½
Electrolytic copper, refinery	12.87½	12.87½	12.87½	13.75
Zinc, St. Louis	*6.10*	6.37½	6.52½	6.95
Zinc, New York	*6.45*	6.72½	6.87½	7.30
Lead, St. Louis	*6.57½*	6.90	7.10	7.60
Lead, New York	*6.87½*	7.15	7.35	7.85
Tin (Straits), New York	*66.75*	68.62½	68.00	63.75
Antimony (Asiatic), N. Y.	*14.75*	15.50	14.00	17.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Pittsburgh

Steel Ingot Output Recedes to 80 Per Cent Rate—Pig Iron Dull, Scrap and Fuel Weak

PITTSBURGH, April 26.—The decline in the demand for steel has been at an accelerated pace in the past week, which most manufacturers describe as one of the slowest of the year to date. Steel ingot production also has tapered off further and for this and nearby districts now is little, if any, more than 80 per cent of capacity, a dip of five points since a week ago. One steel works blast furnace in the Youngstown district has been blown out. The falling away of orders and specifications from the automotive industry has been particularly marked, although it probably is a natural sequence of the procedure of that industry, which seems to be first to sell the cars and then to produce and ship them. The latter phases of the operation are now in progress, and there is naturally a lull in new buying of cars, since there are so many new models to come on the market in the next few months. Sheets, strips and bars are especially affected by this recession.

No improvement can be chronicled regarding the oil situation, which means curtailed drilling operations and a restricted demand for pipe. The structural steel market lately has given some evidence that the peak of spring demands has been reached, and railroad buying of cars and locomotives, which would tend to offset the loss of business in other directions, is lacking, although the New York Central Lines are expected to issue an inquiry soon for 5000 or 6000 cars. Declining tin plate mill operations suggest that can manufacturers are rather well supplied against their probable requirements for the first half of this year. There is little diminution in the activity of the gas industry, which continues to take heavy tonnages of large pipe for pipe lines and is supplying most of the business there is in drill and drive pipe, casing and tubing.

Steel prices are still favorable to buyers, but in the territory in which Pittsburgh mills have an advantage over outside mills in the matter of delivery costs no lower prices than have prevailed recently are noted. It is when local producers go beyond the limits of that area that they encounter competition, which they must meet if they would secure orders. In a broad sense, that is not a new development, but it is one which Pittsburgh manufacturers have been obliged to face since the elimination of the Pittsburgh "Plus" mode of quoting. The highest net prices at mill have been obtained on nearby shipments. There is, however, a strong desire for economical mill operations, and not all manufacturers are curtailing production rather than go below a certain price to get orders.

Activity is a stranger to the pig iron market and lately has been absent from the scrap market. Pig iron producers think the coal strike will eventually be a bullish factor in coke and pig iron and consequently are not much disturbed over the lack of business. The scrap market is weak.

The curtailment of coal production has not gone far enough in view of the heavy stocks above the ground to bring about equilibrium between supply and demand, and prices are very weak, particularly on supplies that are loaded and unconsigned.

Pig Iron.—The American Steel Foundries recently broadcast an inquiry for 3000 to 5000 tons of basic iron for delivery during May, June and July to its Verona, Pa., works. Except for this inquiry, there has been

nothing to awaken the market from its lethargy, and there is so much indifference among producers toward the basic inquiry that it still stands as a prospect. One merchant producer who has been quoting foundry iron at $18.50, Valley furnace, for No. 2, in the past week has gone to $19, but this grade is still offered by three other producers at $18.50. Sales of all grades of iron are for the most part confined to single carloads, and the steadiness of prices is due to the fact that producers are content to hold their iron, rather than to the size of the demand or because the actual supply of iron is short. The Republic Iron & Steel Co. recently took off a furnace at Hazelton, Ohio.

Prices per gross ton f.o.b. Valley furnace:

Basic	$19.00
Bessemer	19.50
Gray forge	$18.00 to 18.50
No. 2 foundry	18.50 to 19.00
No. 3 foundry	18.00 to 18.50
Malleable	18.50 to 19.00
Low phosphorus, copper free	28.00

Freight rate to the Pittsburgh or Cleveland district, $1.76.

Ferroalloys.—The situation in spot tonnages of spiegeleisen is loosening up. There is more than one source of domestic supply, and offerings are increased also by the fact that contract buyers are not in all cases taking full quotas. Consumers desiring last half coverage are being quoted the same prices as for the present half year. In seeking last half tonnages of ferromanganese—and producers are active in solicitation of such business—the same price as for the present half year is being quoted. Specifications in this alloy are not so heavy as they were recently on account of a lower rate of steel ingot production. High grade ferrosilicon is being taken out steadily by contract buyers.

Semi-Finished Steel.—The market is now clearly defined at $33, Pittsburgh or Youngstown, for large billets and slabs and at $34 for sheet bars and small billets and slabs. Some makers have higher quotations, but on actual sales those prices have not lately been exceeded. There is not much activity, as consumers generally exceeded their requirements in their purchases of last month and sheet, tin plate and strip mill operations have been progressively down this month in keeping with smaller new demands. Forging quality steel is holding steadily at $40, base Pittsburgh, but is moving with less freedom than was the case recently. The wire rod market seems to have emerged from its recent competitive condition, and on the general run of tonnages, $42, base Pittsburgh, is as low as makers are going and some still are holding to $43. The quotation of 1.90c. on skelp is untested.

Wire Products.—Demands upon makers reflect actual requirements, and as this is the period of heaviest consumption, not much complaint is heard as to business. All makers could stand more business, but the experiences of the past few years have made it plain that the country cannot take all the wire products that could be produced and that an expansion of sales could be made only at the expense of prices, which all manufacturers regard as low enough. The market as a whole is holding well as to prices.

Rails and Track Supplies.—Spikes and other track accessories are still moving well, but shipments are heavier against old than new business. Small spikes are slow and so also are light-section rails, because the suspension of union coal mines is not causing full operation of the open-shop mines. Coal consumers very generally laid in a stock preparatory to trouble growing out of the strike and now are drawing against the reserves to the detriment of both new sales of coal and mine operations. Standard-section rail shipments are tapering off. Prices generally are steady.

Tubular Products.—A Pittsburgh district maker of oil country seamless pipe that was forced to suspend operations about four weeks ago on account of the slow demand has resumed production on a limited scale. The general story of the demand for oil and gas well pipe, however, is no different than it has been. The over-production of oil remains uncorrected, and while there is some demand for casing, drill and drive pipe and tubing, it is much below what it was at this time last year and what manufacturers expected it would be by this time. Standard-weight pipe is moving steadily enough but lacks the usual volume, and the best occupied capacity is in line pipe. The National Tube Co. is moving about 500 carloads of 8-in. and 10-in. pipe for the Gulf Refining Co. line to run from the McCamey field to Ranger, Tex. The Humble Oil Co. is reported to be considering a line to run from Mirando to Corpus Christi, Tex. The plan is to send an oil pipe line to the Gulf and thence to Eastern refineries in tankers, this method permitting a considerable reduction in transportation costs as compared with piping it through to the East. Fairly good demand is noted for boiler tubes, but mechanical tubing is not doing quite so well as recently.

Sheets.—Sales and mill operations still tend downward. In the first half of April there was a mechanical operation by independent manufacturers of 88 per cent, but this has since receded to about 83 per cent and with the American Sheet & Tin Plate Co. running at 75 per cent, there is an industry average of 81 per cent, which compares with 94 per cent in March. There is a good demand for blue annealed sheets, and in this immediate territory, 2.20c., base Pittsburgh, is the ruling price. The call for other finishes is off, but there is a fair measure of resistance to price pressure and sales of black sheets are reported at 2.75c. and 2.80c., base, and of galvanized at 3.65c. and 3.70c., base, despite reports of lower prices elsewhere. Larger producers do not seem interested in business below these prices.

Tin Plate.—The recession in specifications continues, and mill operations are still dropping. The latter are not more than 80 per cent with the leading interest, which last week went under that mark, while only one of the independent companies manages to maintain its recent rate of production. Can companies are heavily stocked at the moment, and it is too early for them to be interested in their last half requirements. There is some export demand, but it is of small volume.

Cold-Finished Steel Bars and Shafting.—This line, finding its largest use in automobile parts, reflects the

The Iron Age Composite Prices

Finished Steel

April 26, 1927, 2.339c. a Lb.

One week ago	2.367c.
One month ago	2.367c.
One year ago	2.439c.
10-year pre-war average	1.689c.

Based on steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 87 per cent of the United States output of finished steel.

	High		Low	
1927	2.453c.,	Jan. 4;	2.339c.,	April 26
1926	2.453c.,	Jan. 5;	2.403c.,	May 18
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

April 26, 1927, $19.21 a Gross Ton

One week ago	$19.21
One month ago	19.13
One year ago	20.88
10-year pre-war average	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	High		Low	
1927	$19.71,	Jan. 4;	$18.96,	Feb. 15
1926	21.54,	Jan. 5;	19.46,	July 13
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	1.90c.
F.o.b. Chicago	2.00c. to 2.10c.
Del'd Philadelphia	2.22c.
Del'd New York	2.19c. to 2.24c.
Del'd Cleveland	2.09c.
F.o.b. Cleveland	1.90c.
F.o.b. Birmingham	2.05c. to 2.15c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	1.90c. to 2.00c.

Rail Steel

F.o.b. mill	1.75c. to 1.80c.
F.o.b. Chicago	1.90c. to 2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	2.75c.
Common iron, del'd Philadelphia	2.12c. to 2.22c.
Common iron, del'd New York	2.14c. to 2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c. to 2.10c.
F.o.b. Birmingham	1.95c. to 2.05c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.12c. to 2.22c.
Del'd New York	2.14c. to 2.24c.
C.i.f. Pacific ports	2.25c. to 2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mills	1.90c.
F.o.b. Chicago	2.00c. to 2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.07c. to 2.22c.
Del'd New York	2.09c. to 2.24c.
C.i.f. Pacific ports	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.30c.
All gages, 6 in. to 12 in., P'gh	*2.10c.
All gages, narrower than 6 in., Chicago,	2.40c. to 2.60c.
All gages, 6 in. and wider, Chicago,	2.30c. to 2.50c.

*Mills follow plate or sheet prices according to gage on wider than 12 in.

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.40c.
Bars, f.o.b. Chicago	2.40c.
Bars, Cleveland	2.35c.
Shafting, ground, f.o.b. mill	*2.55c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.00c.
Strips, 12-in. to 14-in., Pittsburgh mills,	2.30c. to 2.40c., net
*Strips, 14-in. and wider, Pittsburgh mills	
Strips, f.o.b. Cleveland mills	3.00c.
Strips, delivered Chicago	3.30c. to 3.55c.

*According to size.

Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.55
Galv'd nails	4.55
Galvanized staples	3.25
Polished staples	3.00
Cement coated nails	2.55

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.40
Annealed fence wire	2.55
Spring wire	3.40
Galv'd wire, No. 9	3.00
Barbed wire, galv'd	3.25
Barbed wire, painted	3.00

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	64.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.15c. to 2.20c.
Nos. 9 and 10, f.o.b. Ohio mill	2.15c. to 2.25c.
Nos. 9 and 10, f.o.b. Chicago dist. mill,	2.35c. to 2.45c.
Nos. 9 and 10, del'd Philadelphia	2.47c. to 2.52c.
Nos. 9 and 10, f.o.b. Birmingham	2.35c. to 2.45c.

Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh	2.70c. to 2.80c.
No. 24, f.o.b. Ohio mill	2.75c. to 2.85c.
No. 24, f.o.b. Ch'go dist. mill	2.95c. to 3.05c.
No. 24, del'd Philadelphia	3.02c. to 3.12c.
No. 24, f.o.b. Birmingham	3.10c. to 3.20c.

Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade	3.90c. to 4.00c.
No. 24, f.o.b. Pittsburgh, B grade	3.75c. to 3.95c.

Galvanized

No. 24, f.o.b. Pittsburgh	3.60c. to 3.70c.
No. 24, f.o.b. Ohio mill	3.60c. to 3.75c.
No. 24, f.o.b. Chicago dist. mill	3.85c. to 3.95c.
No. 24, del'd Philadelphia	3.92c. to 4.02c.
No. 24, f.o.b. Birmingham	3.90c. to 4.00c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.00c. to 3.10c.
No. 28, f.o.b. Chicago dist. mill	3.10c. to 3.20c.

Automobile Body Sheets

No. 20, f.o.b. Pittsburgh	4.15c.

Long Ternes

No. 24, 8-lb. coating, f.o.b. mill	4.10c. to 4.30c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)
(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C.	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1½% Nickel, 0.10% to 0.20% Carbon)	$3.00 to $3.15
2300	(3½% Nickel)	4.30 to 4.40
2500	(5% Nickel)	5.50
3100	(Nickel Chromium)	3.30 to 3.40
3200	(Nickel Chromium)	4.75 to 5.00
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.30 to 3.40
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.20 to 4.30
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
	Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
	Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.20 to 4.30
	Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
	Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
	Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specification, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	36.00
Light (from rail steel), f.o.b. mill	34.00
Light (from billets), f.o.b. Ch'go mill	$36.00 to $38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅝ in. and larger	$2.80 to $3.00
Spikes, ½ in. and smaller	2.90 to 3.25
Spikes, boat and barge	3.25
Tie plates, steel	2.35
Angle bars	2.75
Track bolts, ¾ in. and ⅞ in.	3.90 to 4.00
Track bolts, ¾ in. and smaller, per 100 count	70 per cent off list

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	⅛ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	¼ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	17
½	53	42½	¾	28	12
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	15
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		*Charcoal Iron*	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1¼ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3½ to 3½ in.	47
1¾ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	37	3¼ and 3½ in.	53
2½ and 2¾ in.	45	4 in.	56
3 in.	51	4½, 5 and 6 in.	51

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	55
Carbon, 0.30% to 0.40%, base	50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

fact that that industry reached a peak of output last month and now awaits fresh demand. Opinion is divided, as it usually is about the course of automobile production, but a good many incline to the belief that it will not have another good month until fall. It is reasoned that a great many new models will be put upon the market between June and August and the automobile industry now sells cars before it produces and ships them. Demands of other cold-finished bar consuming industries is fairly good, but the total of business is below that of last month by a considerable margin. Prices show some irregularity, but in the main 2.40c. rules on small lots.

Hot-Rolled Flats.—This month has fallen very materially behind March in sales and shipments of strips, but there does not seem to be the anxiety for orders that there was on the last previous dip in business, and prices are holding well. The real test of the market is ahead, however, because of the very general second quarter coverage made prior to the announcement of present prices. Makers are very firm at 2.30c., base, on new business in hoops and bands. Leading manufacturers of hot-rolled strips have established net prices of 2.30c., Pittsburgh, for strips 12 in. to 14 in. wide, running 13 and 14 gage, and of 2.40c., net, f.o.b. Pittsburgh, for those widths in Nos. 15 and 16 gage. Prices on strips wider than 14 in. are left open and will continue to be determined by plate and sheet competition. The prices on 12 to 14 in. strips really are recognized as a base of 2.10c. for Nos. 9 and 10 gage blue annealed sheets plus the gage differentials and a shearing charge of 10c. per 100 lb.

Cold-Rolled Strips.—This product has suffered in sale and output because of lighter demands from the automobile industry, but there is no evidence of a disposition to stimulate sales at the expense of prices. The market is quotable at 3c., base Pittsburgh, with small-lot sales noted at the usual differential.

Bolts, Nuts and Rivets.—The bolt and nut industry as a whole is operating at around 70 per cent of capacity, the highest rate in more than a year. Heavy orders in March explain this rate, which compares with approximately 55 per cent for all of 1926, because demands this month have been smaller. Objections of jobbers to the extra 10 per cent for broken cases over full-case lots are reported to be subsiding, as through standardization of packages, based on a study of jobbers' orders to several manufacturers, bolts and lag screws in the smaller sizes are not packed in cases as low as 90 lb. and it is said that the extra charge would apply to only a fraction of 1 per cent of the total business handled by jobbers.

Steel and Iron Bars.—Mills in this district have not found it necessary to go below 1.90c., base Pittsburgh, on steel bars on business developing in this immediate district but in going north, west or east, find that price is hard to obtain. Mills are not booked very far ahead, but the flow of orders and specifications is fairly steady. Iron bars are dull and weak.

Structural Steel.—Producers in this district continue to hold to 1.90c., base Pittsburgh, for ordinary lots of structural shapes, but on the worth-while tonnages the price is governed a good deal by the size. In the East the price situation is particularly weak, as it is in that section that most of the big structural steel projects are originating.

Plates.—There is still a price of 1.90c., base, on plates, and business is being done at that price, but sales at 1.85c. are increasingly numerous because of a desire of mills for orders. A good deal of tonnage is required for tanks, barges and large pipe, but evidently not enough to fill mill schedules, and the strip mills are providing keen competition for narrow plates, particularly in the gages lighter than ¼-in.

Coke and Coal.—Marketwise the suspension of union coal mine operations, now in its fifth week, is still a negligible factor. There is really too much coal for present requirements. No shortage of coke exists, since production is exceeding contract requirements and, because of full deliveries on contracts and ample reserve supplies, consumers do not want spot tonnages. Buyers can come close to naming their own prices for coal, and while coke prices are not quotably lower on the commonly recognized standard brands, coke that is often used in times of short supplies goes begging.

Old Material.—There is more scrap than there is an outlet for, and the market is weaker. Heavy melting steel in the past week has not sold at more than $16.50, and that price was paid by dealers rather than consumers, none of whom seems interested even at that price or at $16, at which there have been offerings in the past few days. Compressed sheets are not quotable at more than $15.50, and it is hard to interest either dealers or consumers in machine shop turnings and blast furnace grades at more than $12. Scrap consumers in all of the leading steel producing centers are out of the market at present, and the situation feels the additional pressure of dealers, who saw in the union coal mine suspension the possibility of higher prices through a shortage of coke and a consequent advance in pig iron, neither of which has developed.

Prices per gross ton delivered consumers' yards in Pittsburgh and points taking the Pittsburgh district freight rate:

Basic Open-Hearth Furnace Grades:	
Heavy melting steel	$16.00 to $16.50
Scrap rails	15.50 to 16.00
Compressed sheet steel	15.50 to 16.00
Bundled sheets, sides and ends	14.50 to 15.00
Cast iron carwheels	16.00 to 16.50
Sheet bar crops, ordinary	17.00 to 17.50
Heavy breakable cast	15.00
No. 2 railroad wrought	16.50 to 17.00
Heavy steel axle turnings	14.50 to 15.50
Machine shop turnings	12.00 to 12.25
Acid Open-Hearth Furnace Grades:	
Railroad knuckles and couplers	18.50 to 19.00
Railroad coil and leaf springs	18.50 to 19.00
Rolled steel wheels	18.50 to 19.00
Low phosphorus billet and bloom ends	21.00 to 21.50
Low phosphorus mill plate	20.50 to 21.00
Low phosphorus, light grade	18.00 to 18.50
Low phosphorus sheet bar crops	20.00 to 20.50
Heavy steel axle turnings	14.50 to 15.00
Electric Furnace Grades:	
Low phosphorus punchings	19.00 to 19.50
Heavy steel axle turnings	14.50 to 15.00
Blast Furnace Grades:	
Short shoveling steel turnings	12.00 to 12.50
Short mixed borings and turnings	12.00 to 12.50
Cast iron borings	12.00 to 12.50
No. 2 busheling	12.00 to 12.50
Rolling Mill Grades:	
Steel car axles	21.50 to 22.00
No. 1 railroad wrought	13.00 to 13.50
Cupola Grades:	
No. 1 cast	16.00 to 16.50
Rails 3 ft. and under	18.50 to 19.00
Malleable Grades:	
Railroad	16.50 to 17.00
Industrial	16.00 to 16.50
Agricultural	15.50 to 16.00

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforcing steel bars	2.75c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c. to 3.65c.
Hoops	4.00c. to 4.50c.
Black sheets (No. 24 gage), 25 or more bundles	3.75c.
Galvanized sheets (No. 24 gage), 25 or more bundles	4.50c.
Blue annealed sheets (No. 10 gage) 25 or more sheets	3.30c.
Spikes, large	3.30c. to 3.40c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Track bolts, ¾ in. and smaller, per 100 count,	62½ per cent off list
Machine bolts, per 100 count	62½ per cent off list
Carriage bolts, per 100 count	62½ per cent off list
Nuts, all styles, per 100 count,	62½ per cent off list
Large rivets, base per 100 lb	$3.50
Wire, black soft annealed, base per 100 lb.	2.90
Wire, galvanized soft, base per 100 lb.	2.90
Common wire nails, per keg	2.90
Cement coated nails, per keg	2.95

The Japanese Department of Commerce and Industry has appropriated 111,000 yen for research and experimental production in connection with the working of the deposits of iron sands in northern Japan, according to advices to the Department of Commerce from Trade Commissioner J. H. Ehlers, Tokio.

The Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y., will erect a steel frame and brick manufacturing plant, 358 x 480 ft., at Coraopolis, Pa. A 40 x 55 ft. boiler house will also be built. Contracts have been placed with the Austin Co., Cleveland.

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rerolling, 4-in. and over	$33.00
Rerolling, under 4-in. to and including 1¾-in.	34.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$34.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$33.00
Smaller than 8 in. x 2 in.	34.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base	$42.00 to $43.00
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $43 to $44. Cleveland mill base, $43.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algeria,	10.50c. to 11.00c.
Iron ore, Swedish, average 66% iron	10.00c.
Manganese ore, washed, 52% manganese, from the Caucasus	40c. to 41c.
Manganese ore, Brazilian, African or Indian, basis 50%	40c. to 42c.
Tungsten ore, high grade, per unit, in 60% concentrates	$11.00 to $12.00
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.50
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	50c. to 55c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$3.15 to $3.25
Foundry, f.o.b. Connellsville prompt	4.00 to 4.50
Foundry, by-product, Ch'go ovens	9.75
Foundry, by-product, New England, del'd	12.50
Foundry, by-product, Newark or Jersey City, delivered	9.59 to 10.77
Foundry, Birmingham	5.50 to 6.00
Foundry, by-product, St. Louis	10.25

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.50 to $2.00
Mine run coking coal, f.o.b. W. Pa. mines	1.80 to 2.00
Mine run gas coal, f.o.b. Pa. mines	2.00
Steam slack, f.o.b. W. Pa. mines	1.30 to 1.40
Gas slack, f.o.b. W. Pa. mines	1.40 to 1.50

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd	$100.00
Foreign, 80%, Atlantic or Gulf port, duty paid	100.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$37.00
Domestic, 16 to 19%	36.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	*$85.00 to $87.50
75%	145.00

Per Gross Ton Furnace		Per Gross Ton Furnace	
10%	$35.00	12%	$39.00
11%	37.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		Per Gross Ton	
10%	$34.00	12%	$38.00
11%	36.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		Per Gross Ton	
6%	$26.50	10%	$32.00
7%	27.50	11%	34.00
8%	28.50	12%	36.00
9%	30.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.05 to $1.10
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.15 to $3.65
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$16.50 to $17.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works First Quality	Second Quality
Pennsylvania	$43.00 to $46.00	$35.00 to $38.00
Maryland	43.00 to 46.00	35.00 to 38.00
New Jersey	50.00 to 65.00	———
Ohio	43.00 to 46.00	35.00 to 38.00
Kentucky	43.00 to 46.00	35.00 to 38.00
Missouri	43.00 to 46.00	35.00 to 38.00
Ground fire clay, per ton	7.00	

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$43.00
Chicago	52.00
Birmingham	50.00
Silica clay, per ton	$8.50 to 10.00

Magnesite Brick

	Per Net Ton
Standard sizes, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$45.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

Per 100 Pieces

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

	Per Cent Off List
†Machine bolts	70
†Carriage bolts	70
Lag bolts	70
Plow bolts, Nos. 1, 2, 3 and 7 heads	70
Hot-pressed nuts, blank or tapped, square	70
Hot-pressed nuts, blank or tapped, hexagon	70
C.p.c. and t. square or hex. nuts, blank or tapped	70
Washers*	6.75c. to 6.50c. per lb. off list

*F.o.b. Chicago and Pittsburgh. †Bolts with rolled threads up to and including ⅝ in. x 6 in. take 10 per cent lower list prices.

Bolts and Nuts

	Per Cent Off List
Semi-finished hexagon nuts	70
Semi-finished hexagon castellated nuts, S.A.E.	70
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Large Rivets

(⅞-In. and Larger)

	Base per 100 Lb.
F.o.b. Pittsburgh or Cleveland	$2.75
F.o.b. Chicago	2.85

Small Rivets

(⅞-In. and Smaller)

	Per Cent Off List
F.o.b. Pittsburgh	70, 10 and 5
F.o.b. Cleveland	70, 10 and 5 to 70 and 10
F.o.b. Chicago	70, 10 and 5 to 70 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb. on lots of 200 lb. or more)

	Per Cent Off List
Milled cap screws	80, 10 and10
Milled standard set screws, case hardened,	80 and 10
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U.S.S. thread,	85 and 5
Upset hex. cap screws, S.A.E. thread	85 and 5
Upset set screws	80, 10 and 10
Milled studs	70 and 5

Chicago

Structural Awards Heavier—Threat of Molders' Strike Affects Pig Iron Mart

CHICAGO, April 26.—With the exception that awards for structural material are running much larger, there has been little change in the finished steel market in the Chicago district. Specifications are heavy and sustain the current rate of production, which stands at about 2 per cent below the peak of March. Shipments by the leading producer in April have tended to increase slightly, while on the other hand several mills shifted tonnage in an effort to establish records last month and as a result their output in April is suffering.

The demand for soft steel bars is unusually heavy, due for the most part to activity by forgers and to sizable orders for concrete reinforcement. In the lighter products, such as wire and sheets, the demand is easier, because trucking in the near Northwest is almost out of the question on the rain-soaked roads and distribution has been seriously interfered with in the flooded regions of the Mississippi River Valley.

A threat of a molders' strike in Chicago, May 1, is diverting business to outlying melters. Sellers of pig iron find that holdup orders from gray iron jobbing foundries are becoming more common as the first of the month approaches. The scrap market is dull, and incoming shipments of old material are in excess of demand.

Pig Iron.—Jobbing foundries in Chicago are slowing down, and dealers in pig iron have had a relatively large number of orders to delay shipments. New buying in large tonnages is in fair volume, but the spot market is quiet. A Wisconsin user has purchased 2500 tons of foundry iron, and a northern Indiana melter has ordered 750 tons for delivery through August. Five hundred tons has been placed to the west of Chicago, and 1000 tons of foundry iron has been ordered by a Moline, Ill., foundry. In Chicago the market is holding at $20, furnace, but in western Illinois prices are easier. Shipments in April will not measure up to those of March.

Prices per gross ton at Chicago:

Northern No. 2 foundry, sil. 1.75 to 2.25	$20.00
N'th'n No. 1 fdy., sil. 2.25 to 2.75	20.50
Malleable, not over 2.25 sil.	20.00
High phosphorus	20.00
Lake Superior charcoal, averaging sil. 1.50	27.04
Southern No. 2 fdy. (all rail)	24.01
Southern No. 2 (barge and rail)	22.18
Low phos., sil. 1 to 2 per cent, copper free	$31.50 to 32.00
Silvery, sil. 8 per cent	33.29
Bessemer ferrosilicon, 14 to 15 per cent	46.79

Prices are delivered at consumers' yards except on Northern foundry, high phosphorus and malleable which are f.o.b. local furnace, not including an average switching charge of 61c. per gross ton.

Ferroalloys.—Several carloads of spiegeleisen have been placed for prompt delivery at $37 to $38, Hazzard, Pa. For future delivery the most common quotation is $36. The ferromanganese market is dull.

Prices delivered Chicago: 80 per cent ferromanganese, $107.56; 50 per cent ferrosilicon, $85 to $87.50; spiegeleisen, 18 to 22 per cent, $44.76.

Structural Material.—The past week has been unusually active from the standpoint of structural awards, the tonnage placed totaling close to 18,000 tons. An addition to the Insurance Exchange Building, Chicago, will take 11,500 tons, a stadium calls for 2500 tons and an addition to a Chicago electric plant will require 1000 tons. About 5000 tons will be used for a building at 333 North Michigan Avenue. This project is still in the course of being financed, but the low bid for the steel work has been entered by the American Bridge Co. The pending list is large, and active and fresh inquiry is not less than 9000 tons, in which is included 5000 tons for a State capitol at Lincoln, Neb. A feature of the market is the tendency to place contracts without asking for open bids. The Insurance Exchange Building is an example, there having been no competition for that tonnage. Activity in small jobs, ranging from 50 to 300 tons each, is unabated, and operations in shops of average size have been stepped up sharply from 25 per cent of capacity late in March to 50 or 60 per cent in the third week in April. Deliveries on certain sizes and types of structural material are extending as mills receive specifications against recent contracts. Mill prices on plain material are steady at 2c. to 2.10c., Chicago.

Mill prices on plain material per lb.: 2c. to 2.10c., Chicago.

Bolts, Nuts and Rivets.—Demand for bolts, nuts and rivets is steady, and prices are unchanged.

Plates.—The demand for oil storage tanks is spreading, and tonnage is now being asked for by producers in the Wyoming fields. All told, fresh inquiry for tank plates calls for 15,000 tons, bringing total inquiry to not less than 20,000 tons. An order has been received from the Oklahoma fields for 1500 tons. An inquiry is out from the Colorado Fuel & Iron Co., Denver, for 350 tons of plates, and a Western builder is figuring on barges, requiring 1000 tons, for the New York State barge line. Reports are persistent that the Illinois Central will definitely come into the market for 4200 cars by the first of May. Car orders total 1800, of which 1500 are for the Pere Marquette and 300 for the Soo Line. The 1000 box cars awarded to the Pressed Steel Car Co. by the Pere Marqette will be built in the Pittsburgh district. Of the remaining 500 cars, 250 will be constructed in an Illinois shop. The bulk of going plate tonnage is being taken at 2c., Chicago, while small and miscellaneous lots are bringing 2.10c.

Mill prices on plates per lb.: 2c. to 2.10c., Chicago.

Bars.—Specifications for soft steel bars during the first three weeks in April were fully 90 per cent heavier than in the corresponding period of 1926. Specifications in the week now closing are a trifle heavier than a week ago, and new buying is on the same level as during the first part of April. Demand from builders of agricultural machinery is spotty and there is no evidence pointing to greater output of farm equipment. Schedules that have been made for May shipments to the automotive trade show that deliveries in the coming month will be equal to, or at worst, only a trifle under, the total for April. Automobile accessory manufacturers are busy, and specifications emanating from them are about 10 per cent heavier than in March. The demand for iron bars is improving, and prices are steady at 2c., Chicago. The Republic Rolling Mill Corporation, a maker of this commodity in the Chicago district, will close down its mill May 1 for an indefinite period. Specifications for rail steel bars are in excess of production. Orders from the bed industry are more numerous, and concrete reinforcement is taking a round tonnage. Fence post shipments are holding up well except to the lower Mississippi Valley, which is experiencing severe spring floods. Competition from mills to the south is less severe, but nevertheless prices show signs of weakness and more tonnage is being taken at 1.90c., Chicago, than at 2c. The demand for alloy steel bars is steady, with prices unchanged.

Mill prices per lb.: Soft steel bars, 2c. to 2.10c., Chicago; common bar iron, 2c., Chicago; rail steel bars, 1.90c. to 2c., Chicago.

Rails and Track Supplies.—It is reported but not confirmed that a Western railroad has placed a large tonnage of standard-section rails with the Colorado mill. In the Chicago district the market is quiet except for miscellaneous emergency orders made necessary by the floods in the Mississippi Valley. Inquiry for rails in small lots totals 5000 tons. Orders for track supplies include 4000 kegs of spikes and 2000 kegs of bolts. Specifications for both iron and steel tie plates are in good volume, and production remains steady. Rail mills continue to operate at 80 to 85 per cent of capacity, with orders on books sufficient to maintain this rate for four to five weeks.

Prices f.o.b. mill, per gross ton: Standard-section open-hearth and Bessemer rails, $43; light rails, rolled from billets, $36 to $38. *Per Lb.:* Standard railroad spikes, 2.90c.; track bolts with square nuts, 3.90c.; steel tie plates 2.35c.; angle bars, 2.75c.

Cold-Finished Steel Bars.—Current demand is the heaviest in six months. May schedules for the builders of automobiles indicate no let-down from the rate that has been maintained in April. Prices are steady at 2.40c., Chicago.

Sheets.—Specifications for sheets are well maintained, but order books are small and production is on a hand-to-month basis. Makers of light tanks are busy, and orders for the heavy gages of blue annealed sheets are in good volume. Deliveries of this commodity have been extended, but both galvanized and black sheets can be had in less than three weeks.

Prices per lb., delivered from mill in Chicago: No. 24 black, 3c. to 3.10c.; No. 24 galvanized, 3.90c. to 4c.; No. 10 blue annealed, 2.40c. to 2.50c. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Wire Products.—Specifications from the manufacturing trade are slightly heavier. Mill production is steady, with producers making more effort to balance stocks than to increase output in all departments. The demand from the jobbing trade is fair, being influenced more by unsettled weather conditions than by any real slackening in demand. Unseasonably cold weather in the Northwest is holding back trade in that section. Rains in the Dakotas have interfered with distribution, and train service and automobile trucking is practically out of the question throughout wide areas in the flooded sections in the Mississippi Valley. Generally demand is holding up well in practically all lines both to the east and the west. Wire prices are steady, but there are further indications of shading in nails in and close to Chicago.

Reinforcing Bars.—Lettings of reinforcing bars are in good volume, the outstanding contract being for 475 tons for a garage building in Chicago. The list of pending work is large, exceeding that of a year ago at this time, but the banks are cautious and many projects are being held in check pending arrangements for loans. A feature of the market is the relatively large number of awards that range from 25 to 75 tons each. A round tonnage will be required for new public school buildings in Chicago, of which at least four will come out for figures by May 15. Bending shop operations are expanding slowly, now averaging not far from 65 per cent of capacity. Prices are holding except on the more attractive tonnages of rail steel reinforcing bars. Awards and new projects are shown on page 1261.

Cast Iron Pipe.—The desire by manufacturers of pipe to balance their order books has resulted in lower prices. In Chicago the low bid for a round tonnage of 6 and 12-in. pipe was $34.70, Birmingham, or $42.90, delivered, and at Milwaukee a proposal was made to furnish 20-in. pipe at $35.75, Birmingham, or $44.25, delivered. Royal Oak, Mich., has thrown out all bids and is readvertising for 850 tons of 6 and 8-in. Class B pipe. Milltown, Wis., is in the market for 100 tons of 6 and 8-in. pipe. On the whole, this market is active, both in large public lettings and in a substantial run of business from small buyers and public utilities. Among the awards this week are:

Downers Grove, Ill., 520 tons of 8-in. and 570 tons of 12-in. Class B pipe to the Merkle Contracting Co., Kansas City, Mo.

Appleton, Wis., 170 tons of 6 to 12-in. centrifugal pipe to the National Cast Iron Pipe Co.

Chicago, 1900 tons of 8 and 12-in. pipe to the United States Cast Iron Pipe & Foundry Co.

Milwaukee, 570 tons of 20-in. pipe to the United States Cast Iron Pipe & Foundry Co.

Colfax, Ind., 16,000 ft. of 2-in. to 8-in. pipe to the McWane Cast Iron Pipe Co.

Lancaster, Ohio, 170 tons of 6-in. Class D pipe to the Scioto Valley Supply Co.

Wayne, Mich., 100 tons of 6-in. Class B pipe to Crane Co.

Holland, Mich., 300 tons of 6 to 12-in. pipe to the Traverse City Iron Works.

Prices per net ton, delivered Chicago: Water pipe, 6-in. and over, $43.20 to $46.20; 4-in., $47.20 to $50.20; Class A and gas pipe $4 extra.

Coke.—On the whole, demand is steady and prices are unchanged. A few holdup orders have been received by producers, but for the most part suspended tonnage has been diverted for delivery against other contracts.

Old Material.—The market is quiet, and prices are nominal. Dealers are actively engaged in filling old orders at prices 25c. to 50c. below current quotations. Sales to consumers are made only by active solicitation, it being evident that buyers are watching closely both the trend in the scrap market and in orders for their products. Distress tonnage is giving more trouble notwithstanding the fact that shipments from railroads entering Chicago from the South, where floods are hampering shipments, are considerably smaller. Large buyers do not hesitate to take shipments against past obligations, but they are not willing to obligate themselves further at this time. One steel mill that has not been in the market for over a year and a half has accumulated a large stock and contemplates making several boat shipments to the Cleveland and Youngstown districts. Lists include 5600 tons offered by the Santa Fe and 6000 tons advertised by the Chicago, Milwaukee & St. Paul.

Prices delivered consumers' yards, Chicago:

Per Gross Ton

Basic Open-Hearth Grades	
Heavy melting steel	$13.00 to $13.50
Shoveling steel	13.00 to 13.50
Frogs, switches and guards, cut apart, and miscellaneous rails	14.50 to 15.00
Hydraulic compressed sheets	11.50 to 12.00
Drop forge flashings	9.50 to 10.00
Acid Open-Hearth Grades	
Forged, cast and rolled steel carwheels	15.75 to 16.25
Railroad tires, charging box size	16.00 to 16.50
Railroad leaf springs, cut apart	16.00 to 16.50
Steel couplers and knuckles	15.50 to 16.00
Coil springs	16.00 to 16.50
Low phosphorus punchings	15.50 to 16.00
Electric Furnace Grade	
Axle turnings	12.50 to 13.00
Blast Furnace Grades	
Axle turnings	11.00 to 11.50
Cast iron borings	10.50 to 11.00
Short shoveling turnings	10.50 to 11.00
Machine shop turnings	7.50 to 8.00
Rolling Mill Grades	
Iron rails	13.50 to 14.00
Rerolling rails	16.00 to 16.50
Cupola Grades	
Steel rails, less than 3 ft	16.50 to 17.00
Angle bars, steel	14.50 to 15.00
Cast iron carwheels	14.75 to 15.25
Malleable Grades	
Railroad	15.75 to 16.25
Agricultural	14.75 to 15.25
Miscellaneous	
Relaying rails, 56 to 60 lb.	25.50 to 26.50
Relaying rails, 65 lb. and heavier	26.00 to 31.00

Per Net Ton

Rolling Mill Grades	
Iron angle and splice bars	14.00 to 14.50
Iron arch bars and transoms	18.50 to 19.00
Iron car axles	21.00 to 21.50
Steel car axles	17.50 to 18.00
No. 1 railroad wrought	12.25 to 12.75
No. 2 railroad wrought	11.50 to 12.00
No. 1 busheling	10.00 to 10.50
No. 2 busheling	6.75 to 7.25
Locomotive tires, smooth	15.50 to 16.00
Pipes and flues	7.50 to 8.00
Cupola Grades	
No. 1 machinery cast	16.50 to 17.00
No. 1 railroad cast	15.50 to 16.00
No. 1 agricultural cast	14.75 to 15.25
Stove plate	13.50 to 14.00
Grate bars	13.00 to 13.50
Brake shoes	12.00 to 12.50

*Relaying rails, including angle bars to match, are quoted f.o.b. dealers' yards.

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Soft steel bars	3.00c.
Reinforcing bars, billet steel	2.30c. to 2.75c.
Cold-finished steel bars and shafting—	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
Bands	3.65c.
Hoops	4.15c.
Black sheets (No. 24)	3.95c.
Galvanized sheets (No. 24)	4.80c.
Blue annealed sheets (No. 10)	3.50c.
Spikes, standard railroad	3.55c.
Track bolts	4.55c.
Rivets, structural	3.60c.
Rivets, boiler	3.60c.
	Per Cent Off List
Machine bolts	60
Carriage bolts	60
Coach or lag screws	60
Hot-pressed nuts, squares, tapped or blank	60
Hot-pressed nuts, hexagons, tapped or blank	60
No. 8 black annealed wire, per 100 lb	$3.20
Common wire nails, base per keg	$2.85 to 2.95
Cement coated nails, base per keg	2.95

Dismantling Low Moor Furnace

The E. B. Leaf Co., scrap dealer, Philadelphia, has begun the dismantling of the Covington, Va., blast furnace of the Low Moor Iron Co. of Virginia, Low Moor, Va. The Covington furnace was built in 1891 to 1893 and was rebuilt in 1919. It had a capacity of 50,000 tons of foundry iron annually.

New York

Large Sales of Pipe Iron—Steel Business Slower and Prices Weaker

NEW YORK, April 26.—Exclusive of recent sales of pig iron to two large cast iron pipe makers in New Jersey, totaling close to 40,000 tons, bookings in this district have been light for the past week, totaling about 10,000 tons, with about 750 tons of charcoal iron reported sold. The tonnage bought by the pipe companies was divided between the New England interest and two eastern New York furnaces. Solicitation of orders for barge delivery, which began with the opening of navigation on the New York State barge canal, is evidently effective. A nearby New Jersey manufacturer has closed for 3600 tons of foundry for June-July delivery, placing about 1500 tons with an eastern New York producer for delivery by barge. Another buyer seeking barge delivery is the Richmond Radiator Co., inquiring for 1200 tons of No. 2 plain foundry for Norwich, Conn. Prices are substantially unchanged, with eastern Pennsylvania sellers quoting $20.50 per ton, base furnace, and higher, and Buffalo furnaces on a base of $17.50 to $18. The tendency of Buffalo producers is toward a minimum of $17.75 per ton, base, but $17.50 per ton apparently has not entirely disappeared, especially when desirable business is involved.

Prices per gross ton, delivered New York district:

Buffalo No. 2 fdy., sil. 1.75 to 2.25 (all rail)	$22.41
No. 2 plain fdy. (by barge, del'd alongside in lighterage limits N. Y. and Brooklyn)	$20.25 to 20.75
East. Pa. No. 2 fdy., sil. 1.75 to 2.25	21.89 to 23.02
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.39 to 23.52
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	22.89 to 24.02
No. 2 Virginia fdy., sil. 1.75 to 2.25	27.04

Freight rates: $4.91 from Buffalo, $1.39 to $2.52 from eastern Pennsylvania, $5.54 from Virginia.

Ferroalloys.—An inquiry for 100 tons of ferromanganese is the largest before the market. There are now and then sales and inquiries for carload and small lots. The 100-ton inquiry is for prompt shipment. Prices are firm and unchanged. Spiegeleisen is more plentiful, due to the offerings of the new domestic producer, but sales are reported very small with almost no business done in the imported alloy. Quotations are unchanged. Specifications on contract for ferromanganese, spiegeleisen, ferrosilicon and standard ferrochromium are quite heavy.

Finished Steel.—The week has brought further tapering off in volume of business in some lines and more conspicuous price weakness on a number of products. On steel bars 1.85c., Pittsburgh, has become a more common price on an attractive order, and a single carload of desirable sizes falls within that category today. Some mills, however, are getting the bulk of their business at 1.90c. Wire nails have been sold at 2.50c., Pittsburgh, and there has been a decline in blue annealed sheets, in some instances to 2.10c., Pittsburgh, with 2.15c. the common price and 2.20c. now representing the top of the market. Black sheets likewise have softened, sales having been made at 2.70c., Pittsburgh, with 2.75c. the usual maximum, though some buyers are still paying 2.80c. Galvanized sheets are about where they were a week ago, 3.60c. and 3.65c., Pittsburgh. Price weakness also continues to be quite marked in structural shapes, notwithstanding the fact that tonnage in that line is holding up better than in some other rolled steel products. Quotations range from 1.75c. to 1.90c., Pittsburgh, the lower prices, of course, applying usually on large tonnages only. The new Bamberger department store in Newark, calling for 13,000 tons of steel, has been let to the American Bridge Co. A high school building in New York to be fabricated by the Harris Structural Steel Co., requires 4200 tons.

Mill prices per lb. delivered New York: Soft steel bars, 2.19c. to 2.24c.; plates, 2.14c. to 2.24c.; structural shapes, 2.09c. to 2.24c.; bar iron, 2.14c. to 2.24c.

Cast Iron Pipe.—While there is a fair volume of inquiry before the market, prices are not showing much strength. One Southern maker is reported to have again appeared in this market with quotations considerably lower than $37 per ton, Birmingham base, the price that has prevailed recently. Inquiries for small lots of water pipe are numerous, and there are a few sizable tonnages under consideration. Syracuse, N. Y., will open bids May 2, on about 6500 tons of 30-in. water pipe. New York is expected to enter the market shortly for 4000 to 5000 tons of pipe. Providence, R. I., opened bids April 25, and Beverly, Mass., April 26, each on about 200 tons of water pipe. The 500 tons of water pipe for Hamburg, N. J., on which bids were opened last week, is reported placed with the Universal Pipe & Radiator Co.

Prices per net ton, delivered New York: Water pipe, 6-in. and larger, $46.60 to $48.60; 4-in. and 5-in., $51.60 to $53.60; 3-in., $61.60 to $63.60; Class A and gas pipe, $5 extra.

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.34c.
Soft steel bars and small shapes	3.24c.
Iron bar	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	5.75c.
Hoops	4.49c.
Bands	3.99c.
Blue annealed sheets (No. 10 gage)	3.89c.
Long terne sheets (No. 24 gage)	5.80c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1½ x ½ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger	3.65c.
Open-hearth spring steel, bases	4.50c. to 7.00c.

Machine bolts, cut thread:	Per Cent Off List
¾ x 6 in. and smaller	50 to 50 and 10
1 x 30 in. and smaller	45 to 50
Carriage bolts, cut thread:	
½ x 6 in. and smaller	50 and 10
¾ x 20 in. and smaller	50
Coach screws:	
½ x 6 in. and smaller	50 and 10
1 x 16 in. and smaller	50

Boiler Tubes—	Per 100 Ft.
Lap welded steel 2-in.	$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	25.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
½-in. butt	46	29
¾-in. butt	51	37
⅛-in. butt	53	39
2½-6-in. lap	48	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
½-in. butt	4	+19
¾-in. butt	11	+ 9
1-1½-in. butt	14	+ 6
2-in. lap	5	+14
3-6-in. lap	11	+ 6
7-12-in. lap	3	+16

Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100 lb. base box	$6.45	$6.20
Charcoal, per box—	A	AAA
IC	$9.70	$12.10
IX	12.00	14.25
IXX	13.90	16.00

Terne Plate (14 x 20 in.)

IC—20-lb. coating	$10.00 to $11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass

	Per Lb.
Nos. 18 to 20	4.00c.
No. 22	4.15c.
No. 24	4.20c.
No. 26	4.30c.
No. 28*	4.45c.
No. 30	4.70c.

Sheets, Galvanized

	Per Lb.
No. 14	4.35c. to 4.60c.
No. 16	4.45c. to 4.70c.
No. 18	4.60c.
No. 20	4.75c.
No. 22	4.80c.
No. 24	4.95c.
No. 26	5.20c.
No. 28*	5.45c.
No. 30	5.85c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Coke.—Evidently the market is still unaffected by the coal strike, since prices, instead of advancing, are showing continued softness. Prompt foundry coke is obtainable at $4.25 to $4.75 per ton, Connellsville, and on delivery into August $4.65 to $5 is quoted. Standard furnace for prompt delivery ranges from $3.25 to $3.50 per ton, Connellsville. Delivered prices for foundry coke are: To northern New Jersey, $8.53 to $9.03; New York or Brooklyn, $9.29 to $9.79; Newark or Jersey City, N. J., $8.41 to $8.91 per ton. By-product coke installations under way at gas plants in New York, Brooklyn and at New Haven, Conn., will, when completed, considerably increase the output of domestic by-product coke. By-product foundry coke ranges from $9.59 to $10.77 per net ton, delivered Newark or Jersey City, N. J.

Warehouse Business.—April has been a moderately active month, with a good volume of orders, but tonnages involved have been rather small in most instances. However, it has apparently been a better month than March. There is a fair demand for black and galvanized sheets, but some shading of prices on the latter is reported. Offering of additional discounts of 5 or 10 per cent is also reported among sellers of machine bolts. In some quarters it is stated that these concessions merely represent sales of small lots at the lower discount usually quoted on large orders. Zinc sheets continue weak, and a further reduction has been made by warehouses, reflecting the mill quotation effective April 25. The new prices are 11c. to 11.25c. per lb., base, for full casks and 13c. to 13.25c. per lb. for open casks.

Old Material.—The market is inactive, except for the usual movement of heavy melting steel and some blast furnace material to eastern Pennsylvania consumers. No. 1 heavy melting steel continues unchanged at $14.50 per ton, delivered, and borings and turnings are quoted at $10.50 to $11 per ton, delivered. Some brokers have reduced their buying price on specification pipe for a Lebanon, Pa., consumer to $13.25 per ton, delivered, but $13.50 per ton is still being paid in some instances. Yard steel is quoted at $11.75 per ton, delivered to a Pottsville, Pa., consumer and at $12 per ton, delivered Harrisburg, Pa. Foundry grade stove plate is quiet. A consumer at West Mahwah, N. J., is not purchasing at present, and brokers are only offering $11.75 per ton for stove plate delivered to a Bridgeport, Conn., user. Heavy breakable cast continues at $15.50, delivered Harrisburg, Pa., with a slightly higher price offered for a Florence, N. J., foundry, which uses a selected grade.

Dealers' buying prices per gross ton, New York:

No. 1 heavy melting steel	$11.00 to $11.85
Heavy melting steel (yard)	8.25
No. 1 heavy breakable cast	11.75 to 13.00
Stove plate (steel works)	8.25 to 8.75
Locomotive grate bars	9.00 to 9.75
Machine shop turnings	7.50 to 8.00
Cast borings (blast furnace or steel works)	7.50 to 8.00
Mixed borings and turnings	7.50 to 8.00
Stee' car axles	16.00 to 16.50
Iron car axles	24.00 to 24.50
Iron and steel pipe (1 in. diam., not under 2 ft. long)	9.25 to 9.75
Forge fire	8.00 to 8.50
No. 1 railroad wrought	12.50 to 13.50
No. 1 yard wrought, long	11.50 to 12.50
Rails for rolling	11.50 to 12.00
Cast iron carwheels	11.50 to 12.00
Stove plate (foundry)	9.75 to 10.00
Malleable cast (railroad)	11.25 to 11.75
Cast borings (chemical)	12.00 to 12.50

Prices per gross ton, delivered local foundries:

No. 1 machinery cast	$15.00 to $15.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	13.50 to 14.00
No. 2 cast (radiators, cast boilers, etc.)	12.50 to 13.00

Pickands, Brown & Co., merchants of pig iron, will move, May 1, from room 1315 to room 1500 McCormick Building, 332 South Michigan Avenue, Chicago.

The Republic Iron & Steel Co. has moved its Chicago office from room 561 to room 758 McCormick Building, 332 South Michigan Avenue.

Cleveland

Steel Prices Sensitive as Water Competition Develops—Pig Iron Declines 50c.

CLEVELAND, April 26.—Business in finished steel is holding to about the volume reached early in the month. While April sales will show quite a drop from March, some of the sales offices report that their business in this territory this month will equal that of April last year. A good volume of business continues to come from the automotive industry, and reports from Detroit indicate that those motor car builders that are now operating at near capacity expect to keep up good production through May.

Sheets do not show much life. The flood in the Southwest has resulted in the holding up of shipments to the centers affected. However, the disaster is expected to result eventually in a sharp stimulation of the demand for material to rebuild the devastated areas. Building work in this territory continues light, and some fabricators are in need of orders. The only work of any size pending locally is the Cleveland Club, requiring 2100 tons, for which bids have been taken on revised plans. Plate orders are about as numerous as in March, but the average size of orders is smaller. Shops in this territory are figuring on 10 scows for the New York State barge canal, requiring 700 tons of plates and 400 tons of structural material. Manufacturers' wire is moving better than this month last year, but nails are in lighter demand.

The market is in a rather sensitive condition in respect to prices. On steel bars 1.85c., Pittsburgh, has become a more common quotation in Detroit, and water shipments from Buffalo promise to be an important factor in that market during the present season of navigation. The first steel cargo for the season, several hundred tons of bars, was shipped from Buffalo to Detroit during the week. Locally, outside mills are holding to 1.90c., Pittsburgh, for steel bars, but the Cleveland mill price of 1.90c., Cleveland, is not always being maintained. Outside of the list of preferred customers, plates appear to be holding to 1.90c., Pittsburgh, and structural material is being maintained at the same price. Wire and nails are holding to regular quotations in this territory.

Pig Iron.—The local market has a weaker tone, and in some cases the recently prevailing prices on foundry and malleable iron are being shaded 50c. a ton. The demand for semi-finished steel has declined, owing to the slowing down of the steel industry, leaving more pig iron for the merchant trade. The weakness is evidently due both to the larger supply of iron available from steel-making interests and to the rather limited amount of buying recently. Local furnaces are again reaching out into territories where they must meet the competition of southern Ohio, Columbus and Toledo producers, and a Cleveland producer during the week sold some foundry iron at $18, furnace, for shipment to points where it has a considerable freight disadvantage. For shipment in the immediate Cleveland territory local furnaces are still trying to get $18.50, furnace. Other Lake furnaces have not changed their prices, which range from $17.50 to $19 except in Michigan, where $19.50, furnace, is still quoted. While the Valley market is apparently untested, there are reports that the $18.50, Valley, might be shaded, and to shut out any possible sales of Valley iron in Cleveland

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Soft steel bars	3.00c.
Reinforcing steel bars	2.75c. to 3.00c.
Cold-finished rounds and hexagons	3.65c.
Cold-finished flats and squares	4.15c.
Hoops and bands	3.65c.
Cold-rolled strip	*5.95c.
Black sheets (No. 24)	3.65c.
Galvanized sheets (No. 24)	4.50c.
Blue annealed sheets (No. 10)	3.25c.
No. 9 annealed wire, per 100 lb	$2.90
No. 9 galvanized wire, per 100 lb	3.35
Common wire nails, base, per keg	2.90

*Net base, including boxing and cutting to length.

at $18, Cleveland producers who have been holding to $19.50, furnace, for local delivery are now quoting a range of $19 to $19.50. Sales during the week by Cleveland interests aggregated about 20,000 tons, or a slight gain over the previous week. One producer made a few sales for the third quarter, but others are not quoting for that delivery. Deliveries against contracts are holding up well, but April shipments are expected to fall somewhat below those of March.

Prices per gross ton at Cleveland:

N'th'n No. 2 fdy., sil. 1.75 to 2.25	$19.50 to $20.00
Southern fdy., sil. 1.75 to 2.25	24.00 to 24.50
Malleable	19.50 to 20.00
Ohio silvery, 8 per cent	31.50
Basic, Valley furnace	19.00
Standard low phos., Valley fur.	27.50 to 28.00

Prices, except on basic and low phosphorus, are delivered Cleveland. Freight rates: 50c. from local furnaces; $3 from Jackson, Ohio; $6 from Birmingham.

Semi-Finished Steel.—Specifications for sheet bars are light, and a local mill has shut down another open-hearth furnace, now operating nine. There is little new business. Sheet bars appear to be holding closely to $34, Cleveland, but billets and slabs are irregular. A local mill continues to hold to $43, Cleveland, for wire rods.

Sheets.—Mills are getting very little new business, and prices are weak, although no worse than they have been. Because mills need business, some are quoting lower prices for early shipment than for more extended delivery. Quotations of 2.70c., Pittsburgh, and 2.75c., Ohio mill, are being made on black sheets, but these prices are evidently being shaded in some cases. Galvanized sheets are being rather commonly quoted at 3.65c., mill, but 3.60c. is also being named. There is less irregularity in blue annealed sheets than in black and galvanized. Automobile body sheets are firm.

Strip Steel.—Mills are still comfortably filled with orders, but there is not much new demand for either hot or cold-rolled strip. While new extras have been issued covering hot-rolled strip 12 to 14 in. wide, these have not yet been adopted by all the mills. Cold-rolled strip appears to be holding to 3c., Cleveland, with small lots going at the same price.

Reinforcing Bars.—Prices are somewhat irregular. One mill quoted 1.70c. during the week on a small tonnage of rail steel bars, or $1 a ton below its regular quotation, but the business went at a lower price. Sales are light, although a fair amount of business is in prospect.

Warehouse Business.—The demand has slowed down and is rather moderate for all lines. Sheets are moving more slowly than at this time last year, evidently because of the small amount of building work.

Iron Ore.—The market is not active, although a few small-lot open market sales were made during the week. Consumers having long-term contracts are still lining up their requirements for the year.

Coke.—The market has a weak tone. Some makes of standard Connellsville foundry coke are now available at $4, ovens, a decline of 25c. a ton, and better grades are quoted at up to $5.50. Heating coke is soft, now being generally quoted at $3, ovens. The demand is limited mostly to shipping orders on contracts.

Bolts, Nuts and Rivets.—Orders for bolts and nuts, which were rather light during the early part of the month, show some improvement. The demand for rivets has also increased somewhat the past week. Regular prices are being well maintained.

Old Material.—The scrap market has shown a further downward tendency in the past week both in demand and in prices. Some of the mills have put further restrictions on shipments. No. 1 heavy melting steel and blast furnace grades have declined 25c. a ton. Blast furnace scrap, which was moving a week ago at $11.25, is now freely offered at $11. Machine shop turnings have been sold at $9. Good-sized lists of May scrap offerings are coming from the Michigan automobile plants. Those already out include the Buick Motor Co., 4500 tons; the Chrysler Corporation, 3000 tons, and Dodge Brothers, Inc., 3000 tons.

Prices per gross ton, delivered consumers' yards:

Basic Open-Hearth Grades	
No. 1 heavy melting steel	$14.25 to $14.50
No. 2 heavy melting steel	13.75 to 14.00
Compressed sheet steel	14.00 to 14.25
Light bundled sheet stampings	12.00 to 12.50
Drop forge flashings	12.50 to 13.00
Machine shop turnings	9.00 to 9.25
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	14.50 to 15.00
No. 1 busheling	12.50 to 12.75
Pipes and flues	10.00 to 10.50
Steel axle turnings	12.50 to 13.00
Acid Open-Hearth Grades	
Low phosphorus forging crops	16.50 to 17.00
Low phosphorus, billet bloom and slab crops	17.00 to 17.50
Low phosphorus sheet bar crops	16.00 to 16.50
Low phosphorus plate scrap	16.00 to 16.50
Blast Furnace Grades	
Cast iron borings	11.00 to 11.25
Mixed borings and short turnings	11.00 to 11.25
No. 2 busheling	11.00 to 11.25
Cupola Grades	
No. 1 cast	16.50 to 17.00
Railroad grate bars	12.00 to 12.50
Stove plate	12.00 to 12.50
Rails under 3 ft	18.00 to 18.50
Miscellaneous	
Railroad malleable	15.50 to 16.00
Rails for rolling	16.25 to 16.50

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Plates, ¼-in. and heavier	2.80c. to 3.00c.
Plates, ⅛-in.	3.00c. to 3.20c.
Structural shapes	2.65c. to 3.00c.
Soft steel bars, small shapes and iron bars (except bands)	2.70c. to 3.20c.
Round-edge iron	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforcing steel bars, square, twisted and deformed	3.00c.
Cold-finished steel, rounds and hexagons	4.00c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	3.85c. to 4.15c.
Steel bands, No. 12 gage to ⅛-in., inclusive	3.60c. to 3.90c.
Spring steel	5.00c.
Black sheets (No. 24)	4.15c.
Galvanized sheets (No. 24)	5.10c.
Blue annealed sheets (No. 10)	3.30c.
Diamond pattern floor plates—	
¼-in.	5.30c.
⅛-in.	5.50c.
Rails	3.20c.
Swedish iron bars	6.60c.

Philadelphia

Business in Smaller Volume in Steel, Pig Iron and Scrap

PHILADELPHIA, April 26.—A decline in the volume of business in steel, pig iron and scrap has marked the past week. All branches of the market have been extremely dull. The pig iron market remains firm as to prices, but in finished steel there is weakness, while scrap continues to reflect the lack of interest among consumers.

The latest development in the price situation is the selling of steel bars at 1.85c., Pittsburgh, not solely to preferred customers, as has been the case in recent weeks, but to buyers generally who have any desirable tonnage to place. Not all mills have met this price, but some of them are openly quoting it. In sheets there is also fresh weakness, indicated by sales of blue annealed at 2.10c. and 2.15c., Pittsburgh, black at 2.70c. and 2.75c. and galvanized at 3.60c. and 3.65c. On blue annealed, however, some sales have also been made at 2.20c. and 2.25c. The structural steel market is extremely quiet, and concessions are still offered for attractive tonnage. Plates are selling at 1.85c. and 1.90c., Pittsburgh.

Pig Iron.—The past week has brought dullness to the pig iron market. Sales have been few, and the tonnages have been small. Little interest is being taken by melters in third quarter requirements, although some of the orders on furnace books will carry over into that period, largely because of a declining melt at many of the foundries of this district. Prices quoted by furnaces on foundry iron are firm at $21, base furnace, but there is little to test the market.

The Robesonia furnace has gone out of blast and probably will not be operated again.

Prices per gross ton at Philadelphia:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$21.76 to $22.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.26 to 22.76
East. Pa. No. 1X	22.76 to 23.26
Basic (delivered eastern Pa.)	20.75 to 21.25
Gray forge	21.00 to 21.50
Malleable	22.50 to 23.00
Standard low phos. (f.o.b. New York State furnace)	25.00
Copper bearing low phos. (f.o.b. furnace)	25.00 to 26.00
Virginia No. 2 plain, 1.75 to 2.25 sil.	26.67
Virginia No. 2X, 2.25 to 2.75 sil.	27.17

Prices, except on low phosphorus, are delivered Philadelphia. Freight rates: 76c. to $1.64 from eastern Pennsylvania furnaces; $5.17 from Virginia furnaces.

Plates.—A slight shrinkage in the purchases of plates in the past two weeks has brought mill operations in the East down to an average of not more than 50 per cent. Coincident with the decline in buying has come a more general weakening of prices in that an increasing number of sales are being made at 1.85c., Pittsburgh. A good deal of the tonnage, however, still carries a price of 1.90c. The Pennsylvania Railroad has taken bids on six car floats, which will require about 3600 tons of steel, about two-thirds plates and the remainder shapes and bars.

Structural Material.—There is a dearth of sizable structural projects in the Philadelphia district, but a fair amount of small work. The tonnage booked by fabricators and structural mills, however, has declined in the past week or two, and the work in prospect does not encourage expectation of an increase in awards within the near future. The range of prices on ordinary tonnage is 1.80c. to 1.90c., Pittsburgh, with concessions on large lots.

Bars.—Sales of steel bars at 1.85c., Pittsburgh, have become sufficiently frequent within the past week or two to establish a new market level, 1.85c. to 1.90c. The latter price has applied on ordinary tonnage for some time and some makers of bars are still adhering to it, but one or two have gone out for business at the lower level.

Sheets.—Keener competition for sheet orders has brought further weakness in prices. Blue annealed sheets have been sold as low as 2.10c., Pittsburgh, with the usual range, 2.15c. to 2.20c.; black sheets are 2.70c. to 2.75c. and galvanized, 3.60c. to 3.65c.

Old Material.—There has been no buying of importance by consumers of scrap in the past week, and dealers who have scrap that they desire to move are having difficulty in getting buyers to take it at any price. Scrap continues in plentiful supply, and with offerings larger than purchases, the prices continue weak, but unchanged.

Prices per gross ton, delivered consumers' yards, Philadelphia district:

No. 1 heavy melting steel	$14.50 to $15.00
Scrap T rails	14.00 to 14.50
No. 2 heavy melting steel	12.00 to 13.50
No. 1 railroad wrought	16.50 to 17.00
Bundled sheets (for steel works)	11.00 to 11.50
Machine shop turnings (for steel works)	11.00 to 11.50
Heavy axle turnings (or equivalent)	13.50 to 14.00
Cast borings (for steel works and rolling mill)	12.00 to 13.00
Heavy breakable cast (for steel works)	15.50 to 16.00
Railroad grate bars	12.50 to 13.00
Stove plate (for steel works)	12.50 to 13.00
No. 1 low phos., heavy, 0.04 per cent and under	19.00 to 19.50
Couplers and knuckles	17.00 to 17.50
Rolled steel wheels	17.00 to 17.50
No. 1 blast furnace scrap	10.50 to 11.00
Machine shop turnings (for rolling mill)	11.50 to 12.00
Wrought iron and soft steel pipes and tubes (new specifications)	13.50 to 14.00
Shafting	18.00 to 19.00
Steel axles	19.00 to 20.00
No. 1 forge fire	12.00 to 12.50
Steel rails for rolling	16.50 to 17.00
Cast iron carwheels	16.00 to 16.50
No. 1 cast	17.00 to 17.50
Cast borings (for chemical plant)	15.00 to 16.00

Rogers Brown & Crocker Brothers Co., dealers in pig iron and coke, will move, May 1, from room 1500 to room 1315 McCormick Building, 332 South Michigan Avenue, Chicago.

Reduced Ex-Lake Rate on Ore from Chicago to Granite City Upheld

WASHINGTON, April 26.—The reduced rate of $1.20 per gross ton on ex-Lake iron ore, in carloads, from Chicago to Granite City, Ill., was held to be justified by the Interstate Commerce Commission in an opinion last week which affirmed the original finding on reargument. The former rate was $1.40. Protests against the reduced rate were made by the Chicago & North Western Railway and the By-Products Coke Corporation, Chicago. The rate applies on iron ore originating in the iron ranges of northern Michigan, Wisconsin and Minnesota and brought to Chicago by Lake. Under the previous rate there had been practically no movement. The purpose of the reduction was to make movement possible. The commission said that the record indicates that 90 per cent of the ore from the Northern ranges moves to iron-producing points over rail-lake or rail-lake-rail routes and that nearly all of the competitors of the Granite City plant, that of the St. Louis Coke & Iron Corporation, obtain their ore by such routes.

The all-rail rate from all except the Mesabi and Vermilion ranges is $2.93, and the Granite City plant has in the past obtained most of its ore from the Gogebic and Cuyuna ranges. The all-rail rate from the Mesabi and Vermilion ranges, which is $4.14, except that a single point, Biwabik, Minn., from which a rate of $3.30 applies, is declared to be prohibitive. The decision said the Granite City plant wishes to obtain some ore from the Mesabi and Vermilion ranges, since that ore is particularly desirable in making certain kinds of pig iron and that the $1.20 ex-Lake rate will make such purchases possible.

Steel Rates from Middletown, Ohio, to Southwest Held Unreasonable

WASHINGTON, April 26.—Passing upon a complaint of the American Rolling Mill Co., Examiner W. M. Carney in a tentative report to the Interstate Commerce Commission made public last week held that rates on iron and steel sheets and plates from Middletown, Ohio, to destinations in Missouri, Oklahoma, Arkansas, Texas and Louisiana are unreasonable and unduly prejudicial to the extent that they exceed the rates from Cincinnati and points within the Cincinnati switching district, including Newport, Ky.

Longer Rails for Japanese Railroads

WASHINGTON, April 26.—The railroad department of the Japanese Government is considering an increase in the standard length of rail to 18 meters or more, approximately 59 ft., according to Trade Commissioner J. H. Ehlers, Tokio. This change is being considered because of a number of accidents attributed to poor rail joints and to the reported success of European experiments with long length rails. It is said that of the total annual maintenance cost of the Government railways of 45,000,000 yen, nearly 20,000,000 yen is spent in repairing, inspecting and bonding rail joints and similar matters.

The Department of Railways has placed an order in France for 3½ miles of mails 18 m. in length in order to conduct experiments with road composed of the longer length rails. Of course, it is pointed out, the great difficulty encountered is in the shipment of these rails, both with reference to the ocean transportation and to the rail transportation in Japan. This is a particularly difficult matter in Japan due to the narrow gage, short car lengths, sharp curves and many changes. It is proposed to construct special flat cars to transport such rails. If a favorable report is made on them after trial, the Yawata Steel Work (Imperial Government works) will undertake the manufacture of long length rails.

Republic Rolling Mills, Inc., will close down its plant, May 1, for an indefinite period. The mill, located on the shipping canal, near Chicago Avenue, East Chicago, Ind., was formerly the property of the Republic Iron & Steel Co.

San Francisco

Over 10,000 Tons of Fabricated Steel Placed—Gas-Holder to Take 5000 Tons

SAN FRANCISCO, April 23 (*By Air Mail*).—Chief among developments of the week has been a conspicuous increase in fabricated lettings. Awards reported total 10,237 tons. Of this amount the Southern Pacific Equipment Co., San Francisco, placed 4000 tons with unnamed companies. During the week about 100 tons of foreign steel arrived at this port. Of this total 50 tons is Belgian structural material, mostly small angles, and 50 tons is Swedish tool steel.

A referendum will be held in San Francisco June 14 on three propositions, namely, on the purchase of the Spring Valley water system, for which a bond issue of $40,000,000 will be required; on the construction of the so-called Bernal Cut improvement, for which $1,400,000 will be needed, and on the proposed extension of the Municipal Railway at an estimated cost of $4,700,000. It will require a total of $46,100,000 to finance these three propositions.

Pig Iron.—Buying is confined to small lots. This department of the market is extremely dull, and the local foundry situation is "anything but satisfactory." Quotations are unchanged. Reports of price shading lack confirmation.

Prices per gross ton at San Francisco:

*Utah basic	$25.00 to $26.00
*Utah foundry, sil. 2.75 to 3.25	25.00 to 26.00
**Indian foundry, sil. 2.75 to 3.25	25.00
**German foundry, sil. 2.75 to 3.25	24.25

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Besides the letting of 4000 tons for the Southern Pacific Equipment Co. mentioned above, construction work placed in Los Angeles calls for a like amount. Fresh inquiry totals 3831 tons, and a large number of proposed projects are expected to be ready for bids within the next few weeks. Outstanding among the inquiries of the week are a bridge in Portland, Ore., 1552 tons, a bridge over the Colorado River at Lee's Ferry, Ariz., 1000 tons, and an apartment building in Oakland, Cal., also 1000 tons. Local fabricators have booked about 1000 tons during the week in individual jobs calling for less than 100-ton lots. Eastern mills continue to quote plain material at 2.35c., c. i. f. Coast ports.

Plates.—In Long Beach, Cal., Stacy Brothers Gas Construction Co., Cincinnati, is low bidder on 5000 tons for a municipal gas-holder. The Chicago Bridge & Iron Works have taken 200 tons for a tank for the Marin County Municipal Utility District, San Rafael, Cal. Astoria, Ore., will take bids about May 1 on both riveted steel and wooden pipe for a pipe line. The quantity of plates required is estimated at about 1860 tons. Eastern mills quote plates at 2.30c., c. i. f. Coast ports.

Bars.—Total lettings in reinforcing bars during the week amount to about 1000 tons. There is a large number of projects pending. A high school in Oakland, Cal., calls for 600 to 900 tons, on which bids will be taken May 3. Local concrete bar jobbers quote as follows: 2.85c. per lb., base, on lots of 200 tons and 3.10c., base, on less-than-carload lots.

Cast Iron Pipe.—The United States Cast Iron Pipe & Foundry Co. has taken 542 tons of 4, 6, 8 and 12-in. Class B pipe for the city of Santa Barbara, Cal. This was the only important letting of the week. San Diego, Cal., will take bids May 9 on 447 tons of 6, 8 and 10-in. Class B pipe. Long Beach, Cal., has rejected bids on 3700 tons of 6, 8, 12, 16 and 20-in. Class B pipe, and will open new bids April 29. The American Cast Iron Pipe Co. is low bidder on 1665 tons required under Specification Q-779 by the Water and Power Commission, Los Angeles.

Warehouse Business.—Sales are small on individual orders, although the aggregate is fairly large. Quotations are unchanged.

Rails and Track Supplies.—The Southern Pacific Co., San Francisco, has placed 1980 box car axles with an unnamed maker. The Los Angeles County Board of Supervisors, Los Angeles, has awarded 90,000 tie plates to the United Commercial Co., Los Angeles, 156 kegs of track bolts and 475 kegs of track spikes to the United States Steel Products Co., San Francisco, and 26 sets of frogs and switches and one tongue and mate switch to the Bethlehem Steel Co. It is understood that no award has yet been made on 1000 tons of 90-lb. rails for the Alaska Railroad.

Coke.—Local importers have shipments en route from Europe that are expected to arrive here early in May. Buying is somewhat sluggish. Importers quote on specific inquiries only.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.00c.
Soft steel bars	3.00c.
Small angles, 3/8-in. and over	3.00c.
Small angles, under 3/8-in.	3.40c.
Small channels and tees, 3/4-in. to 2 3/4-in.	3.60c.
Spring steel, 1/4-in. and thicker	5.00c.
Black sheets (No. 24)	4.70c.
Common wire nails, base per keg	$3.75
Cement coated nails, 100-lb. keg	3.75
Blue annealed sheets (No. 10)	3.75c.
Galvanized sheets (No. 24)	5.25c.

St. Louis

Floods Adversely Affect Steel Buying—Railroads Embargo Scrap Shipments

ST. LOUIS, April 26.—Sales of pig iron by the local maker during the last week amounted to about 3500 tons, all of which consisted of foundry grades for shipment over the remainder of the second quarter. Calls for iron of higher silicon analysis lead makers to the conclusion that melters are using scrap in generous proportions because of the favorable prevailing prices on that raw material. Stocks of scrap in the hands of consumers in the district are said to be large. Makers believe that if the coal strike continues for another 60 or 90 days, fuel costs will advance.

Prices per gross ton at St. Louis:

No. 2 fdy., sil. 1.75 to 2.25, f.o.b. Granite City, Ill.	$20.50 to $21.00
Northern No. 2 fdy., delivered St. Louis	22.16
Southern No. 2 fdy., delivered	22.42
Northern malleable, delivered	22.16
Northern basic, delivered	22.16

Freight rates: 81c. from Granite City to St. Louis; $2.16 from Chicago; $4.42 from Birmingham.

Coke.—The demand for foundry grades remains only fair. So the railroads continue to receive shipments of coke, although the movement is slow because of floods. The demand for domestic sizes is light.

Finished Iron and Steel.—Business is being affected adversely by floods in all these lines except track spikes, for which railroads have been issuing emergency requisitions against contracts. Jobbers report a marked falling off in business as a result of the heavy rains and overflows in the oil and agricultural sections, but expect a heavy call for such items as corrugated

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.25c.
Bars, soft steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
Black sheets (No. 24)	4.45c.
Galvanized sheets (No. 24)	5.25c.
Blue annealed sheets (No. 10)	3.60c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.30c.
Structural rivets	3.60c.
Boiler rivets	3.80c.
	Per Cent Off List
Tank rivets, 7/8-in. and smaller	70
Machine bolts	60
Carriage bolts	60
Lag screws	60
Hot-pressed nuts, square, blank or tapped	60
Hot-pressed nuts, hexagons, blank or tapped	60

sheets, fencing, nails, etc., as soon as waters subside sufficiently to permit needed repairs. Business in the construction field is quiet here.

Old Material.—Because of high water along the rivers of this section, railroads will not transport old material. Consequently it is difficult for dealers to get scrap to fill existing contracts. Some dealers believe that this situation may lead to a shortage of material in this district and higher prices. Melters in this territory are using a larger percentage of scrap in their mixtures, but they are drawing on their stocks for this, as there is very little buying. Railroad lists include: Santa Fe, 5600 tons; Chicago, Burlington & Quincy, 4200 tons; Union Pacific, 1700 tons; Nickel Plate, 1800 tons; Chicago, Milwaukee & St. Paul, 1600 tons; Missouri Pacific, 200 tons.

Prices per gross ton f.o.b. dealers' yards and delivered St. Louis district consumers' works:

Heavy melting steel	$12.25 to $12.50
Heavy shoveling steel	12.25 to 12.50
Miscellaneous standard-section rails, including frogs, switches and guards, cut apart	13.00 to 13.50
Railroad springs	14.00 to 14.50
Bundled sheets	8.50 to 9.00
No. 2 railroad wrought	12.25 to 12.50
No. 1 busheling	10.00 to 10.50
Cast iron borings	9.00 to 9.50
Iron rails	14.00 to 14.50
Rails for rolling	14.50 to 15.00
Machine shop turnings	8.00 to 8.50
Steel car axles	19.00 to 19.50
Iron car axles	23.00 to 23.50
Wrought iron bars and transoms	19.50 to 20.00
No. 1 railroad wrought	12.00 to 12.50
Steel rails, less than 3 ft	16.00 to 16.50
Steel angle bars	13.00 to 13.50
Cast iron carwheels	14.50 to 15.00
No. 1 machinery cast	18.00 to 18.50
No. 1 railroad cast	15.50 to 16.00
Railroad malleable	14.00 to 14.50
Agricultural malleable	13.50 to 14.00
Relaying rails, 60 lb. and under	20.50 to 23.50
Relaying rails, 70 lb. and over	26.50 to 29.00

Birmingham

Demand for Cast Pipe Declines—Pig Iron Market Is Quiet

BIRMINGHAM, April 26.—Pig iron stocks on furnace yards are small, shipments have exceeded production for some time, unfilled tonnage is still of large proportions and the present rate of melt will continue for some time, at least. Heavy second quarter buying took place just before the quarter opened. In addition, there have been numerous small-lot purchases. The needs of melters for May and June will be heavy, according to indications, and buying is expected to increase beyond present hand-to-mouth proportions. No sales have yet been made for third quarter delivery, and the market remains unchanged at $18, Birmingham, for No. 2 foundry. There is no intimation as to what prices may be quoted for third quarter. Furnace interests are confident that business will warrant a continuation of the current rate of production. At present 10 furnaces are manufacturing foundry iron, 12 are on basic and one is on ferromanganese.

Prices per gross ton, f.o.b. Birmingham district furnaces:

No. 2 foundry, 1.75 to 2.25 sil.	$18.00 to $19.00
No. 1 foundry, 2.25 to 2.75 sil.	18.50 to 19.50
Basic	18.00
Charcoal, warm blast	29.00

Rolled Steel.—While some open-hearth furnaces are still out of commission at Ensley, Fairfield and Alabama City, many of the finishing mills are running at capacity and there is steady flow of shipments. Plate specifications are heavy. Rails, as has been stated before, are in strong demand on old contracts. New business in rails, particularly heavier and longer sections, is in sight. The Welded Products Co., Birmingham, which has been an active buyer of plates of late, has a number of contracts for tanks for asphalt, buoys for a lighthouse near Portland, Me., and shore pipe for dredging in the Mississippi River and at Miami. Mill prices are unchanged.

Cast Iron Pipe.—While pressure pipe shops are producing at a lively clip, new business is slow. Prices, which range from $36 to $37 per ton, Birmingham, for 6-in. and larger sizes, are very weak. Deliveries are being pushed, and a further reduction of accumulated stocks is reported. Pipe output will continue on an active scale through the second quarter. Pipe makers have purchased only limited amounts of pig iron, feeling sure of being able to obtain iron when it is needed and hoping for reduction in price.

Coke.—A small number of by-product ovens are out of commission, but production and shipments are still in good volume. Quotations are around $5.50 per net ton, Birmingham, for foundry coke. Coal production in Alabama is close to 400,000 tons weekly. In some quarters it is believed that there will soon be call for both coal and coke because of the strike in the Middle West.

Old Material.—Prices remain unchanged, and very little buying is being done. Heavy melting steel at $12 is finding very few takers. Several open-hearth furnaces are out, but this has not resulted in a material decrease in scrap consumption. The available supply of old material is large.

Prices per gross ton, delivered Birmingham district consumers' yards:

Heavy melting steel	$12.00 to $12.25
Scrap steel rails	12.50 to 13.00
Short shoveling turnings	8.00 to 8.50
Cast iron borings	8.00 to 8.50
Stove plate	13.00 to 14.00
Steel axles	16.00 to 17.00
Iron axles	16.00 to 17.00
No. 1 railroad wrought	11.00 to 12.00
Rails for rolling	15.00 to 16.00
No. 1 cast	15.00 to 16.00
Tramcar wheels	15.00 to 16.00
Cast iron carwheels	14.00 to 15.00
Cast iron borings, chemical	13.00 to 14.00

Seattle

Increasing Inflow of Foreign Steel—Low Belgian Bid on Alaska Rails

SEATTLE, April 22 (*By Air Mail*).—The leading feature of the local steel market is the increasing inflow of foreign steel in various forms. A recent shipment of 3200 tons of bars and small shapes landed a few days ago. This is said to be the largest single shipment of foreign steel ever received in Seattle, and there is a growing apprehension that Belgian and German makers are setting out on a campaign to capture all the Pacific Coast trade that it is possible for them to get. A recent quotation on steel bars of about 2c., delivered Seattle, gives some idea of how low foreign makers will go to get into Coast territory. The ruling price on domestic bars at present is 2.35c., delivered Seattle.

April will show a falling off in steel demand as compared with March, both for mills and jobbers. However, the outlook for the summer is regarded as good, especially for steel going into building. Permits issued in April for new structures will show a big increase over any previous month this year.

Pig Iron.—Only small lots are being sold, and prices are without change. There are unconfirmed reports that several cargoes of foreign iron are on the way to Seattle. Utah basic and foundry iron remain at about $25 per ton, delivered Seattle.

Plates.—New demand is only for small lots, but considerable tonnage is expected to come in the market within 60 days. Among large prospective jobs are a water line for Tacoma, Wash., calling for 30 miles of 36-in. steel pipe and a line for Astoria, Ore., requiring about 1500 tons of plates. The city of Seattle is fast replacing its old wooden water lines with steel, and considerable of this will be done this summer, calling for a large tonnage of plates. The ruling market on tank plates is 2.30c., delivered Seattle. On very desirable orders, this price could be shaded about $1 per ton.

Shapes.—No large contracts have been placed in this district lately, but some large work is in sight that no doubt will come out in the near future. The Great Northern Life Insurance Co. will erect a 25-story building at Third Avenue and University Way, Seattle, and early estimates are that it will take upward of 3000 tons of steel. The Elks are to build a large addi-

tion to their present temple here, which will take 1000 to 1500 tons. Other large work is being figured on, but is not ready for announcement. The Wallace Bridge & Structural Steel Co. has taken 600 tons for a bascule bridge at Hoquiam, Wash. Structural shapes remain firm at 2.35c., delivered Seattle.

Sheets.—Weakness in prices has not entirely disappeared, and demand is fair for galvanized but for black and blue annealed is very quiet. In carload lots, ruling mill prices per lb., delivered Seattle, are: No. 24 galvanized, 4.25c.; No. 24 black, 3.35c., and No. 10 blue annealed, 2.75c. On desirable orders, one or two Eastern mills might slightly shade these prices.

Steel Rails.—The order for 1000 tons of standard-section 90-lb. rails for the Alaska Railroad has been held up for revised prices, and bids are to be reopened on Monday, April 25. In the original tenders domestic open-hearth rails were quoted at $46.41 per gross ton, delivered, but a price of $41.50 on Belgian Bessemer rails was put in and this has held up the order. It is said that the road will not use Bessemer rails but is now trying to obtain a lower price on domestic open-hearth rails. One bidder, offering relaying rails, made a bid of $29, delivered, on this inquiry.

Bars.—Demand for reinforcing bars is fairly active but for merchant bars is sluggish. From 500 to 1000 tons of reinforcing bars was placed in the past week, and it is said that inquiries are out for 2000 to 3000 tons, mostly for Seattle work. Lower prices have recently been named for reinforcing bars, because of severe competition.

Hoops and Bands.—This is the quiet season in these products, and not much new business is being placed. Prices remain firm. On carloads and larger quantities, the market on hoops and bands is 2.90c per lb., delivered.

Warehouse Business.—Local jobbers report that trade in April will show some falling off as compared with March. Prices are reported as remaining firm. There has been some revision in prices on bolts and rivets. Carriage bolts are now quoted at 55 off list instead of 40 off as before, machine bolts are 55 off instead of 45, and button and cone-head rivets are now $5.25, base, instead of $5 as in the old list.

Old Material.—The local market is almost entirely neglected, and prices are largely nominal.

Boston

Slightly Larger Pig Iron Sales But With Some Price Shading

BOSTON, April 26.—The Mystic Iron Works in the past week sold more than 3500 tons of iron, including one 2000-ton lot of foundry grade and smaller lots to New England foundries for April to July delivery, and a 1200-ton lot for June and July delivery, to a foundry outside New England. The Gilbert & Barker Mfg. Co., Springfield, Mass., will close today on 500 tons of No. 2X, for June delivery. A Buffalo furnace has taken several lots ranging from carload lots to 200 tons; a New York State furnace booked close to 1000 tons in small lots, and most furnaces in other territories took some business. In the aggregate, sales were somewhat larger than for the previous week. Prices quoted openly by Buffalo furnaces and furnaces east of Buffalo remain as heretofore, but there has been some shading on recent bookings of 500-ton, and larger, lots even on deliveries running into the third quarter. The iron made by the Mystic Iron Works, which heretofore has been averaging 0.65 per cent and higher in phosphorus and around 0.90 per cent in manganese, now runs 0.30 to 0.50 per cent in phosphorus and 0.90 to 1.20 per cent in manganese. The melt of iron in New England does not increase. A survey shows that during the past year and a half 17 foundries have gone out of business, while the number of new ones is very small. Lowell, Mass., which formerly had seven foundries, today has three. New Bedford, Mass., has one, as against four formerly. The decline in other New England cities has been nearly as sharp. Information has been obtained from the office of the president of the American Radiator Co. that there is no truth in the report circulated in the New England pig iron trade that the radiator company may take over the H. B. Smith Co., Westfield, Mass., manufacturer of heaters.

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Plates	3.365c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Soft steel bars and small shapes	3.265c.
Flats, hot-rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hexagons	4.05c.
Squares and flats	4.55c.
Toe calk steel	6.00c.

Prices of foundry iron per gross ton, delivered to most New England points:

Buffalo, sil. 1.75 to 2.25	$22.41 to $22.91
Buffalo, sil. 2.25 to 2.75	22.91 to 23.41
East. Penn., sil. 1.75 to 2.25	24.15 to 24.65
East. Penn., sil. 2.25 to 2.75	24.65 to 25.15
Virginia, sil. 1.75 to 2.25	27.42
Virginia, sil. 2.25 to 2.75	27.92
Alabama, sil. 1.75 to 2.25	24.91 to 26.77
Alabama, sil. 2.25 to 2.75	25.41 to 27.27

Freight rates: $4.91 from Buffalo, $3.65 from eastern Pennsylvania, $5.92 from Virginia, $6.91 to $8.77 from Alabama.

Cast Iron Pipe.—No municipal pipe business on open bids was closed during the past week, but a sizable tonnage was booked privately. It is expected the Metropolitan District Water Commission, Boston, will shortly ask bids on 6000 to 7000 ft. of 30-in. pipe. Prices on small pipe remain firm, while those on large are still unsettled. Prices quoted openly on domestic pipe are: 4-in., $58.10 a ton, delivered common Boston freight rate points; 6 to 12-in., $53.10 to $54.10; larger pipe, $52.10 to $53.10. A $5 differential is asked on Class A and gas pipe.

Old Material.—Business has dwindled to small proportions, and while no material changes are noted, the undertone of prices is softer. The average top price on heavy melting steel is now $10 a ton, on cars, a decline of 25c. from the level of a week ago. Some sales of mixed borings and turnings are noted at $6.50, but the best most brokers will do is $6.25. For scrap rails $9.50 a ton is paid more often than $10, whereas a week ago $9.75 appeared to be the bottom quotation. Additional sales of long bundled skeleton for Worcester, Mass., are reported at $7.50 to $8.10, on cars shipping point. Sales of yard steel at $7.10 a ton, on cars, and of long bundled cotton ties at $6.50 are reported. The market for textile machinery is at a standstill, with prices unchanged.

Buying prices per gross ton, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$9.75 to $10.00
Scrap rails	9.50 to 10.00
No. 1 railroad wrought	11.50 to 12.00
No. 1 yard wrought	10.00 to 10.25
Machine shop turnings	6.25 to 6.50
Cast iron borings (steel works and rolling mill)	7.00 to 7.50
Bundled skeleton, long	7.00 to 8.00
Forged flashings	7.50 to 8.00
Blast furnace borings and turnings	6.00 to 6.25
Forged scrap	6.50 to 7.00
Shafting	14.00 to 15.00
Street car axles	15.00 to 15.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	8.50 to 9.00
Rails for rerolling	11.00 to 11.50
Cast iron borings, chemical	10.50 to 11.00
Prices per gross ton, delivered consumers' yards:	
Textile cast	$17.00 to $17.50
No. 1 machinery cast	16.50 to 17.00
No. 2 machinery cast	15.00 to 15.50
Stove plate	12.50 to 13.00
Railroad malleable	16.00 to 16.50

Coke.—Most New England foundries will have bought less by-product foundry coke during April than in March. Connellsville district fuel is cheaper at $4.25

to $4.50 a ton on cars, ovens, or $9.79 to $10.04 delivered New England. Some fuel is $5 a ton, ovens, or $10.54 delivered. Advices are that the Connellsville market is duller than it has been in years. The New England Coal & Coke Co. and the Providence Gas Co. are making shipments on a basis of $12.50 a ton, delivered, within a $3.10 freight rate zone. New York State by-product foundry coke is obtainable at less than $10.50 a ton, delivered Boston. New England ovens have made no move toward opening their books for the last half of 1927 and probably will not do so until late in May or early in June.

Cincinnati

Demand for Roofing Sheets Disappointing—Pig Iron, Coke and Scrap Dull

CINCINNATI, April 26.—No improvement is noted in the pig iron market, the listless condition of which has continued during the past week. Foundry operations in this territory are proceeding on such a restricted basis that many melters are taking only small lots of iron, and in some cases temporary suspension of further shipments has been requested. Both of the active merchant stacks at Ironton have second quarter tonnage to sell, and at least one of them has been compelled to lay down considerable stock in its yards because of the lack of orders. A few inquiries for third quarter have come out, but the majority of consumers are not interested in placing requirements beyond June 30. A furnace in the Ironton district has sold 700 tons of foundry iron at $20, base Ironton. It is believed that this order is for delivery within the vicinity of Ironton, because it is not likely that a melter located at a considerable distance from the southern Ohio furnaces would have to pay that price for his iron. A central Ohio seller has disposed of 1000 tons of malleable, which is bringing $18.50, base furnace, in the central part of the State and $19, furnace, in the Cincinnati district. A Hamilton, Ohio, company has purchased 500 tons of low silicon Southern iron. Alabama iron continues at $18, base Birmingham, and Tennessee iron at $18.50. The only sizable inquiry is for 600 tons of Northern foundry for a Piqua, Ohio, stove company. The silvery market is quiet, with 8 per cent firm at $28.50, base Jackson. A local dealer reports the sale of 300 tons of low phosphorus Southern iron.

Prices per gross ton, delivered Cincinnati:

So. Ohio fdy., sil. 1.75 to 2.25	$21.39 to $21.89
So. Ohio malleable	20.64 to 21.89
Alabama fdy., sil. 1.75 to 2.25	21.69
Alabama fdy., sil. 2.25 to 2.75	22.19
Tennessee fdy., sil. 1.75 to 2.25	22.19
Southern Ohio silvery, 8 per cent	30.39

Freight rates: $1.89 from Ironton and Jackson, Ohio; $3.69 from Birmingham.

Finished Material.—Two large sellers of bars and structural steel report that sales in the past week were the best so far this year, but others have not participated in this spurt in business. A dearth of sizable structural jobs has had a depressing effect on the market, but this has been partially offset by numerous small lettings. Buyers are watching their inventories carefully to avoid stocking up too heavily with material, the effect of this policy being seen in demands upon the mills for rush delivery of small tonnages. Bars, structural shapes and plates continue at 1.90c., base Pittsburgh. Outstanding in the sheet market is the disappointing volume of business in galvanized sheets, caused by the poor roofing season to date. Unfavorable weather has been partially responsible for this unsatisfactory condition. Galvanized stock remains at 3.75c., base Pittsburgh. Black and blue annealed sheets are steady at 2.80c. and 2.20c., base Pittsburgh, respectively. Orders for special grades of sheets have held up well, and indications are that there will be little change in the near future. Wire goods are moving at a fair rate, with prices the same as a week ago. The movement of cold-rolled steel is consistently good, although specifications from automobile parts manufacturers have declined slightly.

Warehouse Business.—Sales have improved slightly, but the slowness with which outdoor construction work is opening up has been a deterrent. Signs of a revival of interest in reinforcing bars, however, are appearing. Prices remain firm.

Coke.—Both the by-product and beehive coke markets are still sagging, and little change is expected in the next few weeks. A substantial reduction in the foundry melt has forced a number of by-product foundry coke consumers to cut down their specifications, while by-product domestic grades have been moving slowly. Foundry coke shipments from the New River and Wise County districts have been of only fair volume.

Foundry coke prices per net ton, delivered Cincinnati: By-product coke, $9.52 to $9.64; Wise County coke, $7.59 to $8.09; New River coke, $10.09 to $10.59. Freight rates: $2.14 from Ashland, Ky.; $2.59 from Wise County and New River ovens.

Old Material.—Lessened production on the part of many scrap consumers has been responsible for a decline in demand for many items. A large buyer of foundry grades has temporarily refused to accept further shipments, and other industrial plants have sufficient material to supply present needs. Steel companies in this territory have ample stock for current requirements. Dealers are of the opinion that the weakness that has cropped out will continue for at least 30 days. Aside from a reduction in borings and turnings, prices do not yet reflect the downward course of the market.

Dealers' buying prices per gross ton, f.o.b. cars, Cincinnati:

Heavy melting steel	$13.00 to $13.50
Scrap rails for melting	13.50 to 14.00
Loose sheet clippings	9.50 to 10.00
Champion bundled sheets	10.50 to 11.00
Cast iron borings	9.75 to 10.25
Machine shop turnings	9.00 to 9.50
No. 1 busheling	10.50 to 11.00
No. 2 busheling	7.50 to 8.00
Rails for rolling	14.00 to 14.50
No. 1 locomotive tires	16.50 to 17.00
No. 1 railroad wrought	12.00 to 12.50
Short rails	17.50 to 18.00
Cast iron carwheels	13.00 to 15.00
No. 1 machinery cast	18.00 to 19.00
No. 1 railroad cast	14.50 to 15.00
Burnt cast	8.50 to 9.00
Stove plate	10.00 to 10.50
Brake shoes	10.50 to 11.25
Railroad malleable	14.50 to 15.00
Agricultural malleable	13.50 to 14.00

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	3.40c.
Bars, soft steel or iron	3.30c.
Reinforcing bars	3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5.00c.
Black sheets (No. 24)	4.05c.
Galvanized sheets (No. 24)	4.90c.
Blue annealed sheets (No. 10)	3.60c.
Structural rivets	3.85c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb.	$3.00
Common wire nails, base per keg	2.95
Cement coated nails, base per 100 lb. keg	3.05
Chain, per 100 lb.	7.55
	Net per 100 Ft.
Lap welded steel boiler tubes, 2-in.	$18.00
4-in.	35.00
Seamless steel boiler tubes, 2-in.	19.00
4-in.	39.00

Scrap Inactive at Detroit as Melt Declines

DETROIT, April 26.—There has been very little activity in the scrap market during the past week, and no change in prices. The melt in this district is on a slightly lower basis than during March, due to the fact that an anticipated change in the models of some automobile makers about the middle of the year is affecting foundry production at this time.

	Per Gross Ton
Heavy melting and shoveling steel	$12.75 to $13.25
Borings and short turnings	8.75 to 9.25
Long turnings	7.75 to 8.25
No. 1 machinery cast	17.00 to 18.00
Automobile cast	19.00 to 20.00
Hydraulic compressed	11.25 to 11.75
Stove plate	13.50 to 14.50
No. 1 busheling	10.75 to 11.25
Sheet clippings	8.25 to 8.75
Flashings	11.00 to 11.50

Buffalo

Steel Demand Subsides—Pig Iron Is Quiet and Scrap Is Softer

BUFFALO, April 26.—The pig iron market is very quiet. Furnaces are booking a fair volume of small lots but nothing extraordinary. The largest order taken by one interest was for 200 tons and its bookings for the week totaled only about 1000 tons. Most producers are holding to a base price of $18 Buffalo, and it is more and more difficult to obtain prices below this, although for Eastern delivery $17.50 has been done on some lots. One furnace that is quoting $18, base, is asking $19.50 for No. 1X. The foundry melt is not so high as furnaces had hoped. The Wickwire-Spencer Steel Co. stack that had been reported earlier in the year as due to be relighted in May will not go into blast next month, and the date for going in is problematical. It is understood that the Charlotte, N. Y., stack of the Corrigan, McKinney Steel Co. has gone out of blast for the last time, and that the site of the plant has been sold to the city of Rochester for a park. The furnace was erected in 1867.

Prices per gross ton, f.o.b. Buffalo, furnace:

No. 2 plain fdy., sil. 1.75 to 2.25	$17.50 to $18.00
No. 2X foundry, sil. 2.25 to 2.75	18.00 to 18.50
No. 1X foundry, sil. 2.75 to 3.25	19.00 to 19.50
Malleable, sil. up to 2.25	17.50 to 18.00
Basic	17.50 to 17.75
Lake Superior charcoal	27.28

Old Material.—The market is a little quieter this week, and the prices seem to be somewhat softer. There has been no new buying of heavy melting steel except by dealers, who are paying $14.50 to $15 against the old orders of one mill and $15.50 against those of another mill with more rigid specifications. There is an active demand for stove plate, but it is not coming out in the usual seasonal quantity. Mills are paying $14.50 to $14.75. There has been some buying of short rails, and dealers are paying $11 to $11.50, Niagara Falls, for machine shop turnings.

Prices per gross ton, f.o.b. Buffalo consumers' plants:

Basic Open-Hearth Grades	
No. 1 heavy melting steel	$15.50 to $16.00
No. 2 heavy melting steel	14.50 to 15.00
Scrap rails	16.00 to 16.50
Hydraulic compressed sheets	14.50 to 15.00
Hand-bundled sheets	11.00 to 11.50
Drop forge flashings	13.00 to 13.50
No. 1 busheling	14.50 to 15.00
Heavy steel axle turnings	14.00 to 14.50
Machine shop turnings	9.00 to 9.50
Acid Open-Hearth Grades	
Railroad knuckles and couplers	17.50 to 18.00
Railroad coil and leaf springs	17.50 to 18.00
Rolled steel wheels	17.50 to 18.00
Low phosphorus billet and bloom ends	17.50 to 18.00
Electric Furnace Grades	
Heavy steel axle turnings	14.00 to 14.50
Short shoveling steel turnings	11.50 to 12.00
Blast Furnace Grades	
Short shoveling steel turnings	11.50 to 12.00
Short mixed borings and turnings	10.00 to 10.50
Cast iron borings	11.00 to 11.50
No. 2 busheling	13.50 to 14.00
Rolling Mill Grades	
Steel car axles	17.00 to 17.50
No. 1 railroad wrought	13.00 to 13.50
Cupola Grades	
No. 1 machinery cast	16.50 to 17.00
Stove plate	14.00 to 14.50
Locomotive grate bars	13.00 to 13.50
Steel rails, 3 ft. and under	18.00 to 18.50
Cast iron carwheels	15.00 to 16.00
Malleable Grades	
Railroad	16.50 to 17.00
Agricultural	16.50 to 17.00
Industrial	16.50 to 17.00

Finished Iron and Steel.—Business is slowing up somewhat. Demand for bars, however, is good, with the market holding rather generally at 2.165c., Buffalo, though the preferred trade may be able to shade this. Sheet mill operations are around 80 per cent of capacity, but prices are no stronger. It is said that 2.75c., base Pittsburgh, and possibly a little lower, could be done on No. 24 black. Business in pipe has slowed up considerably, due to diminishing drilling operations. Bolt and nut bookings at the new list and discount have been fair. Several important reinforcing bar jobs are being figured, but details have not been made public.

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes	3.40c.
Soft steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
Black sheets (No. 24)	4.30c.
Galvanized sheets (No. 24)	5.15c.
Blue annealed sheets (No. 10)	3.80c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb	3.90

Toronto

Pig Iron and Scrap Show Buoyancy and Market Outlook Is Good

TORONTO, ONT., April 26.—Interest in the Canadian pig iron market continues fairly active despite the fact that future buying has practically disappeared. Melters who have not covered by contract for this quarter are showing rather keen interest in spot requirements, with the result that sales on this account are well maintained. It is estimated that upward of 65 per cent of the pig iron consumers in Ontario and Quebec have now covered by contract for the next two months, and specifications are appearing regularly and furnaces are making delivery on schedule. The 50 per cent increase in the production of pig iron in Canada during the month of March over that of the previous month indicates to some extent the improvement that has featured the iron and steel industry of this country. Both mills and foundries are operating on a higher scale than at the beginning of the year, and present indications are that operations will continue at this rate for some time to come. Shipments of pig iron are arriving in Ontario from Sydney, N. S., and the opening of navigation on the Great Lakes will assist in the movement of iron from Sault Ste. Marie and Hamilton, Ont. Six blast furnaces are blowing in Canada, these having a capacity of 47 per cent of the total possible output of all blast furnaces in the Dominion. Canadian pig iron prices remain unchanged.

Prices per gross ton:

Delivered Toronto	
No. 1 foundry, sil. 2.25 to 2.75	$24.10
No. 2 foundry, sil. 1.75 to 2.25	24.10
Malleable	24.10
Delivered Montreal	
No. 1 foundry, sil. 2.25 to 2.75	26.50
No. 2 foundry, sil. 1.75 to 2.25	26.50
Malleable	26.50
Basic	25.50
Imported Iron at Montreal Warehouse	
Summerlee	36.00
Carron	36.00

Old Material.—Sales for the week fell off somewhat owing to the Easter and Jewish holiday season, but dealers continue optimistic regarding the future. Large consumers continue to buy more freely than in earlier weeks of the year, and contracts are being placed much more freely. Dealers in Toronto and Montreal report a good movement of heavy melting steel, turnings and several other lines to the mills, and also more active buying of machinery cast and malleable scrap by foundries. The electric furnace operators are also taking in larger tonnages of old material, while the demand from implement makers and sanitary manufacturing concerns has become better during the past few weeks. Spot buying by consumers continues the main feature of the market, although there is still some future contract placing by the larger buyers.

Dealers' buying prices:

	Toronto	Montreal
	Per Gross Ton	
Heavy melting steel	$10.50	$9.00
Rails	11.00	10.00
No. 1 wrought	11.00	14.00
Machine shop turnings	8.00	7.50
Boiler plate	8.00	8.00
Heavy axle turnings	8.50	8.50
Cast borings	8.50	7.50
Steel turnings	8.00	8.00
Wrought pipe	6.00	6.00
Steel axles	15.00	17.00
Axles, wrought iron	17.00	19.00
	Per Net Ton	
No. 1 machinery cast	16.00	18.00
Stove plate	10.00	13.00
Standard carwheels	14.00	16.00
Malleable scrap	14.00	14.00

FABRICATED STRUCTURAL STEEL

Awards of About 57,000 Tons—Newark Building Takes 13,000 and Chicago Job 11,000 Tons

A Newark department store taking 13,000 tons, a Chicago office building calling for 11,000 and a high school in New York of 4200 tons help to swell the week's awards of structural steel to about 57,000 tons. Pending projects amount to more than 31,000 tons. Awards follow:

MANCHESTER, N. H., 150 tons, theater, to New England Structural Co.

BOSTON, 450 tons, City Hospital surgical building, to New England Structural Co.

BEDFORD, MASS., 150 tons, Veterans' Hospital, to Lehigh Structural Steel Co.

BOSTON & MAINE RAILROAD, 500 tons, bridges, to an unnamed fabricator.

NEWARK, N. J., 13,000 tons, Bamberger department store, to American Bridge Co.

NEW YORK, 4200 tons, De Witt Clinton High School, to Harris Structural Steel Co.

NEW YORK, 1830 tons, in the following jobs reported by the Structural Steel Board of Trade of New York: Apartment building at 330 West Fifty-second Street, to Lehigh Structural Steel Co.; addition to Commercial Cable Co.'s building at 18 New Street, to Post & McCord; Nurses' Home at Montefiore Hospital, to A. E. Norton, Inc.; hospital at Bayonne, N. J., to Hinkle Iron Co.

NEW YORK, 500 tons, Chemical National Bank, to Hay Foundry & Iron Works.

MINETTO, N. Y., 225 tons, Columbia Mills, to an unnamed fabricator.

ATLANTIC COAST LINE, 175 tons, bridge, to Virginia Bridge & Iron Co.

PENNSYLVANIA RAILROAD, 650 tons, bridges, to Bethlehem Steel Co.

PENNSYLVANIA RAILROAD, 125 tons, bridge, to Jones & Laughlin Steel Corporation.

NEW YORK CENTRAL, 250 tons, bridge, to an unnamed fabricator.

STATE OF NEW YORK, 500 tons, highway bridges, to McClintic-Marshall Co.

MIDDLETOWN, N. Y., 250 tons, hospital, to Lehigh Structural Steel Co.

PHILADELPHIA, 350 tons, addition to General Hospital, to Bethlehem Fabricators, Inc.

BALTIMORE, 500 tons, building for Consolidated Gas Co., to Dietrich Brothers.

WASHINGTON, 700 tons, Mutual Life Insurance Building, to Barber & Ross.

HARRISBURG, PA., 500 tons, Riverview Manor Apartments, to Jones & Laughlin Steel Corporation.

NATRONA, PA., 100 tons, tanks and structures for Natrona Water Co., to Pittsburgh-Des Moines Steel Co.

PITTSBURGH, 100 tons, sheet piling for William Penn Hotel extension, to Bethlehem Steel Co.

CORAOPOLIS, PA., 500 tons, plant for the Russell, Burdsall & Ward Bolt & Nut Co., to Austin Co.

CLEVELAND, 175 tons, gas holder for American Steel & Wire Co., to Stacey Mfg. Co.

CHICAGO, 1000 tons, power house addition for Commonwealth Edison Co., to American Bridge Co.

CHICAGO, 5000 tons, office building at 333 North Michigan Avenue, to American Bridge Co.

CHICAGO, 2500 tons, Paddy Harmon Stadium, to American Bridge Co. pending satisfactory financial arrangement.

CHICAGO, 500 tons, Finchley Building, to American Bridge Co.

CHICAGO, 11,000 tons, addition to Insurance Exchange Building, to McClintic-Marshall Co.

EVANSTON, ILL., 200 tons, building for National Biscuit Co., to American Bridge Co.

WAUKEGAN, ILL., 250 tons, filtration plant, to the Aztec Iron Works, Chicago.

SAN RAFAEL, CAL., 200 tons, tank for the Marin County Municipal Utility District, to Chicago Bridge & Iron Co.

EMERYVILLE, CAL., 100 tons, building for the New Metal Products Co., to Herrick Iron Works, Oakland.

SAN FRANCISCO, 1500 tons, 7 steel hull dredges for the United States Smelting & Refining Co. for use in Alaska, to Bethlehem Steel Co.

SAN FRANCISCO, 400 tons, building for St. Elizabeth's Hospital, to Minneapolis Steel & Machinery Co.

SAN FRANCISCO, 4000 tons, fabricated structural material for car frames and parts for the Southern Pacific Equipment Co., to unnamed companies.

LOS ANGELES, 338 tons, undercrossing, Pico Boulevard near Vineyard Station, to McClintic-Marshall Co.

LOS ANGELES, 175 tons, bridge on Fletcher Avenue for Pacific Electric Railway Co., to McClintic-Marshall Co.

LOS ANGELES, 1000 tons, building for Downtown Shopping News, to McClintic-Marshall Co.

LOS ANGELES, 1500 tons, building for the Troy Motor Sales Co., Wilshire Boulevard, to Baker Iron Works.

LOS ANGELES, 200 tons, Franklin High School auditorium, to Minneapolis Steel & Machinery Co.

LOS ANGELES, 650 tons, building for Platt Music Co., to Llewellyn Iron Works.

LOS ANGELES, 120 tons, plant for Illinois-Pacific Glass Co., to Llewellyn Iron Works.

SEATTLE, WASH., 150 tons, steel barge for the Union Oil Co., to Wallace Bridge & Structural Steel Co.

Structural Projects Pending

PROVIDENCE, R. I., 400 tons, State office building.

CAMBRIDGE, MASS., 150 tons, plant for National Biscuit Co.

HARTFORD, CONN., 140 tons, city bridge.

BRIDGEPORT, CONN., 1000 tons, highway bridge.

NEW HAVEN, CONN., 800 tons, Yale University laboratory.

NEW YORK, 700 tons, loft building on West Thirty-eighth Street.

NEW YORK, 1600 tons, addition to Hotel St. Regis, Fifth Avenue.

MT. VERNON, N. Y., 100 tons, City Hall.

PHILADELPHIA, 200 tons, column cores for building of Philadelphia Wholesale Drug Co.

NEW YORK STATE BARGE LINE, 1000 tons, for barges.

PHILADELPHIA, 650 tons, store building for George Allen.

PHILADELPHIA, 500 tons, Nurses' Home for General Hospital.

WILMINGTON, DEL., 300 tons, apartment building.

PENNSYLVANIA RAILROAD, 400 tons, pier on North River, New York.

PENNSYLVANIA RAILROAD, 2500 tons, bridge at Terre Haute, Ind.

CHICAGO, 1500 tons, addition to Northern Trust Co. Building.

ILLINOIS CENTRAL RAILROAD, 600 tons, bridges.

RACINE, WIS., 600 tons, theater.

MILLTOWN, WIS., tonnage not stated, elevated steel tank and tower.

MINNEAPOLIS, MINN., 2000 tons, field house for University of Minnesota.

LINCOLN, NEB., 5000 tons, State Capitol Building.

PUEBLO, COLO., 350 tons, plates for Colorado Fuel & Iron Co.

DENVER, COLO., 176 tons, emergency gates, Gibson dam, Sun River project, Montana; bids May 20 by United States Bureau of Reclamation at Denver.

PHOENIX, ARIZ., 1000 tons, Grand Canyon bridge over Colorado River at Lee's Ferry; bids about June 20 by State highway engineer at Phoenix.

OAKLAND, CAL., 1000 tons, apartment building, 1515 Oak Street; bids will be called about Sept. 1.

SAN FRANCISCO, 103 tons, apartment building, Lombard Street; bids being taken.

RIVERSIDE, CAL., 216 tons, pipe lines; plans being prepared.

SACRAMENTO, CAL., 140 tons, filtration system; bids April 28.

LONG BEACH, CAL., 5000 tons, municipal gas holder; Stacy Brothers Gas Construction Co., Cincinnati, low bidder.

RAMONA, CAL., 109 tons, pipe line for Ramona Irrigation District, Baker Iron Works, low bidder.

MONTEREY PARK, CAL., 120 tons, welded pipe line, Los Angeles Mfg. Co., low bidder.

PORTLAND, ORE., 1552 tons, Broadway bridge improvement and Lovejoy viaduct for Multnomah County, Ore.; bids April 29 by County Commissioners at Portland.

ASTORIA, ORE., 1860 tons, riveted steel or wooden pipe line for Young's River water system; bids about May 1.

BURNS, ORE., 500 tons, commercial building.

SEATTLE, WASH., 1200 tons, Elks' Temple.

SEATTLE, 3000 tons, Great Northern Life Insurance Building.

RAILROAD EQUIPMENT

Pere Marquette Orders 1500 Freight Cars and Soo Line Contracts for 300

The Pere Marquette has ordered 1500 freight cars and the Soo Line 300 and the Lehigh & New England is inquiring for 200 box cars. Details of the week's business in railroad equipment follow:

The Pere Marquette has ordered 1500 freight cars, of which 1000 box cars will be built by the Pressed Steel Car Co., 250 gondola cars by the Illinois Car & Mfg. Co. and 250 hopper cars by the Standard Steel Car Co.

The St. Louis Southwestern has ordered 30 caboose car underframes from the Virginia Bridge & Iron Co.

The Lehigh & New England is inquiring for 200 50-ton box cars.

The Chicago, North Shore & Milwaukee has ordered 10 flat cars from the Standard Steel Car Co., and the Chicago, South Shore & South Bend, an affiliated road, has ordered 6 flat cars from the same builder.

The Soo Line has ordered 150 hopper cars from the Pullman Car & Mfg. Corporation and a like number from the Siems-Stemble Co.

The Chicago, Burlington & Quincy has ordered 12 locomotives from the Baldwin Locomotive Works.

NON-FERROUS METAL MARKETS

The Week's Prices

Cents per Pound for Early Delivery

	Apr. 26	Apr. 25	Apr. 23	Apr. 22	Apr. 21	Apr. 20
Lake copper, New York	13.25	13.25	13.25	13.25	13.25	13.25
Electrolytic copper, N. Y.*	12.87½	12.87½	12.87½	12.87½	12.87½	12.87½
Straits tin, spot, New York	66.75	66.37½	....	66.62½	67.00	68.00
Lead, New York	6.87½	6.87½	6.95	6.95	6.97½	7.00
Lead, St. Louis	6.57½	6.57½	6.60	6.60	6.70	6.75
Zinc, New York	6.45	6.45	6.55	6.55	6.60	6.70
Zinc, St. Louis	6.10	6.10	6.20	6.20	6.25	6.35

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, April 26.—Lower prices have appeared in all the markets except copper. In the latter market quotations are fairly firm though buying is light. Both consumers and dealers have been active in the tin market at considerably lower quotations. Lead has again been reduced with demand rather small. Decided weakness has developed in zinc with prices the lowest in many months.

Copper.—Fundamentally sound and statistically strong is the opinion of some leading producers as to the condition of the market. One or two others are not so optimistic. It appears that several sellers have sold their output into June and they report that, although some consumers are not booked as fully as in the past, the condition of their books is favorable. The general market for electrolytic copper reached 13.12½c., delivered in the Connecticut Valley, last week and has held there since. There has been exceedingly little shading, if any, at this price. Domestic buying for the week ended with Wednesday, April 20, is placed at about 20,000 tons, but this is relatively small. Since then the market has been exceedingly quiet but firm. On April 20 Copper Exporters, Inc., advanced their price from 13.35c. to 13.50c., c. i. f. Hamburg, and there was fair buying previous to the advance. Lake copper is quoted at 13.25c., delivered.

Tin.—Sales for the week ended with and including Saturday, April 23, are placed at about 1400 tons, a very active period. On one day, April 21 (Thursday), 600 tons was done and on the following day 400 tons, confining the bulk of the sales to two days. In general the selling was free and consumers were good buyers, taking easily about one-half of the total. On the quieter days the buying was practically all done by dealers. Yesterday, Monday, the market was quiet with about 200 tons changing hands, and today the activity has been even less. Quotations both here and in London have fallen sharply. Spot Straits tin at New York today was quoted at 66.75c., the lowest level in many weeks, and in London prices today were from £9 to £12 per ton lower than a week ago, with spot standard quoted at £294 5s., future standard at £290 5s. and spot Straits at £307 5s. The Singapore market today was £299 5s. The decline in London is attributed to the collapse of an attempt to corner spot standard tin. Arrivals thus far this month have been 6545 tons with 4985 tons reported afloat.

Lead.—The American Smelting & Refining Co. again reduced its New York contract price on April 20 from 7.15c. to 7c., New York. In the meantime prices in the outside market have also declined until the metal at St. Louis can be bought today at 6.55c. to 6.60c., with the corresponding New York price at 6.85c. to 6.90c., which we quote as the market. Demand in general is light, prospective buying being retarded somewhat by the prevailing weakness.

Zinc.—Prime Western zinc has fallen to the lowest prices in many months, the metal being sold yesterday in fair amounts at 6.10c., St. Louis, or 6.45c., New York. Today sentiment is a little better with prices slightly firmer, some producers quoting 6.12½c., St. Louis, the equivalent of 6.47½c., New York. Ore prices have again declined, resting on Saturday at $41 per ton, Joplin. This level is said to mean the elimination of some high-cost producers of the ore. In general the weakness of the metal is due to over-production and the eagerness of some sellers to do business under almost any conditions. Considerable buying is reported

Metals from New York Warehouse

Delivered Prices Per Lb.

Tin, Straits pig	68.00c. to 69.00c.
Tin, bar	71.00c. to 72.00c.
Copper, Lake	14.50c.
Copper, electrolytic	14.25c.
Copper, casting	13.75c.
Zinc, slab	7.37½c. to 7.87½c.
Lead, American pig	8.00c. to 8.50c.
Lead, bar	10.80c. to 11.30c.
Antimony, Asiatic	16.50c. to 17.00c.
Aluminum No. 1 ingot for remelting (guaranteed over 99 per cent pure)	29.00c. to 30.00c.
Babbitt metal, commercial grade	30.00c. to 40.00c.
Solder, ½ and ½	42.00c. to 43.00c.

Metals from Cleveland Warehouse

Delivered Prices Per Lb.

Tin, Straits pig	72.00c.
Tin, bar	74.00c.
Copper, Lake	14.00c.
Copper, electrolytic	14.00c.
Copper, casting	13.25c.
Zinc, slab	8.25c.
Lead, American pig	8.00c.
Antimony, Asiatic	19.50c.
Lead, bar	10.00c.
Babbitt metal, medium grade	23.25c.
Babbitt metal, high grade	74.00c.
Solder, ½ and ½	42.50c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base Per Lb.

Sheets—	
High brass	18.12½c. to 18.87½c.
Copper, hot rolled	21.75c. to 22.75c.
Copper, cold rolled, 14 oz. and heavier,	24.00c. to 25.00c.
Seamless Tubes—	
Brass	23.00c. to 24.00c.
Copper	23.75c. to 24.75c.
Brazed Brass Tubes	25.87½c. to 26.87½c.
Brass Rods	15.87½c. to 16.87½c.

From New York Warehouse

Delivered Prices, Base Per Lb.

Zinc sheets (No. 9), casks	11.00c. to 11.25c.
Zinc sheets, open	12.00c. to 12.25c.

Non-Ferrous Rolled Products

Bronze, brass and copper products continue unchanged since the latest reduction of prices on April 8. Effective April 25, however, zinc and lead sheet prices were revised downward 50c. per 100 lb. to 9.75c. per lb. for zinc and 10.50c., to 10.75c. per lb. for lead.

List Prices, Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. per 100 Lb. Allowed on Shipments of 500 Lb. or Over.

Sheets—	
High brass	18.12½c.
Copper, hot rolled	21.75c.
Zinc	9.75c.
Lead (full sheets)	10.50c. to 10.75c.
Seamless Tubes—	
High brass	23.00c.
Copper	23.75c.
Rods—	
High brass	15.87½c.
Naval brass	18.62½c.
Wire—	
Copper	15.00c.
High brass	18.62½c.
Copper in Rolls	20.62½c.
Brazed Brass Tubing	26.12½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide	35.50c.
Tubes, base	45.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

	Base per Lb.
Sheets—	
High brass	18.12½c.
Copper, hot rolled	21.75c.
Copper, cold rolled, 14 oz. and heavier	24.00c.
Zinc	11.50c.
Lead, wide	10.25c.
Seamless Tubes—	
Brass	23.00c.
Copper	23.75c.
Brazed Brass Tubes	26.12½c.
Brass Rods	15.87½c.

to have been done quietly, though consumers are not as busy as in March, particularly galvanizers.

Antimony.—The market is easier with Chinese metal for spot and future delivery quoted today at 14.75c., New York, duty paid.

Nickel.—Wholesale lots of ingot nickel are quoted unchanged at 35c. with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 26c. per lb., delivered.

Non-Ferrous Metals at Chicago

APRIL 26.—The price of copper is stronger in an active market and quotations on tin, lead and zinc are lower. Old metals are dull and the prices of lead and pewter are lower.

We quote in carload lots: Lake copper, 13.25c.; tin, 68.50c.; lead, 6.70c.; zinc, 6.35c.; in less than carload lots, antimony 16.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.25c.; copper bottoms, 9c.; red brass, 9c.; yellow brass, 7.25c.; lead pipe, 5.50c.; zinc, 4c.; pewter, No. 1, 34c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 15c.; all being dealers' prices for less than carload lots.

REINFORCING STEEL

Awards Are Above 7000 Tons and New Projects Amount to 4600 Tons

The week's awards of concrete reinforcing steel, totaling more than 7000 tons, included two of 1000 tons each, a warehouse in New York and subway work in New York. Pending projects of about 4600 tons consist mostly of jobs under 500 tons. Awards follow:

NEW YORK, 300 tons, White Service & Sales Co. building, to Carroll-McCreary Co., Inc.

NEW YORK, 1000 tons, subway work, O'Day Construction Co., general contractor, to Kalman Steel Co.

NEW YORK, 1000 tons, R. C. Williams & Co., warehouse, Tenth Avenue and Twenty-sixth Street, to Concrete Steel Co.

BAYSHORE, L. I., 100 tons, building for Bayshore Telephone Co., to Carroll-McCreary Co., Inc.

FREEPORT, N. Y., 100 tons, municipal pumping station, to Concrete Steel Co.

KEARNEY N. J., 100 tons, plant building, Western Electric Co., to Concrete Steel Co.

PHILADELPHIA, 450 tons, Philadelphia Fidelity Building, to Davis Brothers.

PHILADELPHIA, 225 tons, job for the Wark Co., to A. Taylor & Co.

CHICAGO, 110 tons, apartment building at 202 East Walton Place, to American System of Reinforcing.

SPRINGFIELD, ILL., 300 tons of billet and rail steel, State road work, to Truscon Steel Co.

ELYRIA, OHIO, 100 tons, municipal swimming pool, to Bourne Fuller Co.

JACKSON, TENN., 150 tons, Southern Hotel, to Laclede Steel Co.

BEAVER DAM, WIS., 100 tons, hotel, to American System of Reinforcing.

MILWAUKEE, 180 tons, school, to Concrete Engineering Co.

GREEN BAY, WIS., 175 tons, commercial building, to Truscon Steel Co.

DAVENPORT, IOWA, 145 tons, bank building, to Mullen Lumber Co., Davenport.

Old Metals, Per Pound, New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	11.25c.	12.50c.
Copper, heavy and wire	11.00c.	12.00c.
Copper, light and bottoms	9.25c.	10.75c.
Brass, heavy	7.00c.	8.50c.
Brass, light	6.00c.	7.50c.
Heavy machine composition	8.50c.	10.125c.
No. 1 yellow brass turnings	7.75c.	8.50c.
No. 1 red brass or composition turnings	8.00c.	9.00c.
Lead, heavy	6.00c.	6.50c.
Lead, tea	4.50c.	5.00c.
Zinc	4.00c.	4.50c.
Sheet aluminum	15.00c.	17.00c.
Cast aluminum	15.00c.	17.00c.

CHICAGO, 100 tons, apartment building at 5141 Blackstone Avenue, to Concrete Engineering Co.

CHICAGO, 350 tons, apartment building at 6161 Winthrop Avenue, to Barton Spider-Web System.

CHICAGO, 100 tons, apartment building at 154 North Avenue, to Barton Spider-Web System.

CHICAGO, 475 tons of rail and billet bars, garage on Jackson Boulevard, to Truscon Steel Co.

CHICAGO, 100 tons of rail steel, Garfield State Bank Building, to Kalman Steel Co.

SPRINGFIELD, ILL., 600 tons of rail and billet steel for State road work; 100 tons to Kalman Steel Co. and 500 tons to Olney J. Dean & Co.

EVERETT, WASH., 100 tons, State highway work, to Northwest Steel Rolling Mills, Inc., Ballard, Wash.

SEATTLE, WASH., 200 tons, Chancellor apartment building, to Northwest Steel Rolling Mills, Inc.

LONGVIEW, WASH., 200 tons, Longview High School, to Pacific Coast Steel Co., Seattle.

SAN FRANCISCO, 200 tons, for an unnamed project, to an unnamed jobber.

SAN FRANCISCO, 100 tons, New San Francisco Laundry Co., to Gunn, Carle & Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

NEW YORK, 125 tons, subway work, Patrick McGovern, Inc., general contractor.

BOSTON, 400 tons instead of 150 as previously reported, Young Women's Christian Association building.

CAMBRIDGE, MASS., 400 tons, William A. Filene building.

ROCHESTER, N. Y., 125 tons, school No. 34; bids asked.

LOUISVILLE, KY., 350 tons, South junior high school.

OTEEN, N. C., 200 tons, United States Veterans' Hospital.

BILOXI, MISS., 200 tons, Biloxi Hotel.

BATTLE CREEK, MICH., 450 tons, building for the Postum Co.

DECATUR, ILL., 550 tons, Seventh Street viaduct, Jones Engineering Co., Chicago, low bidder.

PORTLAND, ORE., 200 tons, theater.

SACRAMENTO, CAL., 200 tons, for a filtration system for the municipality; bids April 28.

OAKLAND, CAL., 600 to 900 tons, Oakland high school, Hopkins Street and Park Boulevard; bids May 3.

SAN FRANCISCO, 125 tons, five bridges in Yosemite National Park, bids May 4 by United States Bureau of Public Roads in San Francisco.

LOS ANGELES, 550 tons, buildings for the Terminal Produce, Central Avenue and Kohler Street.

LOS ANGELES, 380 tons, apartment building at North Broadway and Sichel Street; bid being taken.

LOS ANGELES, 220 tons, addition to a building on Hill Street.

Work on the largest oil tanker in the world to be equipped with Diesel-electric propulsion has been begun at the yards of the Scott Shipbuilding & Engineering Co., Greenock, Scotland, for the fleet of the Atlantic Refining Co., according to the Ingersoll-Rand Co. The tanker will be of 12,500 tons deadweight, 469 ft. in length, and with a designed speed of 11 knots per hr. Four oil engines, of the Carels-Ingersoll-Rand four-cycle airless injection type, built by the Carels firm at Ghent, Belgium, will drive the dynamos. Each engine will be of 750 hp. capacity, with six cylinders 19½ in. in diameter.

CONTENTS

April 28, 1927

MEETINGS

STATISTICAL

NEW EQUIPMENT

DEPARTMENTS

In This Issue

Stabilized commodity prices reflect low margins of profit. Prices have become so low that little or no profit margin exists. Production will soon be reduced to a quantity that can be sold without further price-cutting.—Page 1229.

Magnetic and mechanical properties of steel are not related, says Bureau of Standards. It is not possible to determine mechanical properties of material by **magnetic test. Resistance** to magnetization does not even represent magnetic properties.—Page 1226.

Says standardized crane control would reduce accidents. Any crane operator would be able to operate any make of crane, eliminating accidents caused by different location of controls.—Page 1217.

Freight rate investigation may result in entire new alinement of producing territories. Iron and steel companies realize that their markets may be drastically changed. Testimony in general hearing shows present rate structure greatly responsible for localizing iron and steel markets.—Page 1231.

Our iron and steel exports increased in March; so did imports. Total tonnage shipped out of country was 171,094, a gain of 5066 over February. Imports totaled 61,872 tons, an increase of 12.412 tons.—Page 1219.

Selected engineering instructors will have an opportunity to extend their knowledge. Picked men from 150 engineering colleges will attend summer school in Cornell and University of Wisconsin, in accordance with plan advocated by the Engineering Foundation.—Page 1218.

Trade commission will probably continue fight to have iron and steel manufacturers submit cost data. Commission expected to apply to Attorney-General to institute proceedings.—Page 1215.

Skin infection is not caused by lubricating oil, oil man declares.—The condition of the machine operator is responsible for infection, he says. Cleanliness of hands, bodies, clothing and wiping rags will do much to eradicate this type of industrial ailment.—Page 1217.

Cost of producing steel is cut by electrification. Colorado steel mill installs a central power plant and wipes out losses caused by isolated boiler plants, with their low steam pressures, high labor and maintenance cost and poor efficiency. Seventy-five boilers have already been eliminated. Total will reach 118 when program is completed.—Page 1205.

Favor retention of ferromanganese tariff. Declare that tariff encourages experiments on lower grade deposits, and enables concentrator to sell at a price which will pay for his operations.—Page 1211.

"Business is near the peak of a cycle and has already declined somewhat," says Dr. Haney. The present cycle is marked by an entire absence of financial weakness. The large supply of money and credit, coupled with gain in production efficiency, has prolonged the period of good business and obscured the passing of the peak.—Page 1228.

Mountain snow banks provide water for Colorado steel mill. From reservoirs in mountains, water is piped five miles to mill.—Page 1207.

P-V Line upturn forecasts improvement in business within a few months. Upward trend is due to slowing up of commodity price declines and the falling off in physical volume of trade. Though business will probably recede further, the trend of the forecasting line justifies hope of improvement by early autumn.—Page 1229.

Storage would not solve manganese problem in war emergency. Withdrawal from the market of the immense tonnage necessary for this purpose would materially affect prices. We should control the channels of flow from the sources, which means control of sea routes.—Page 1210.

Have the limits of production efficiency been reached? Yes, for the time being, says Dr. Haney. Efficiency of labor has made high earnings possible, without preventing profits.—Page 1229.

Forms automobile body panels by stretching sheets over cast iron dies. Grippers hold sheet firmly in place; then the die is raised hydraulically, stretching sheet to the proper shape. Cost of equipment and dies is low; little floor space is required, and the apparatus is flexible in its applications.—Page 1221.

Demands of sheet and tin mill workers for wage increases will be moderate. Demands are mostly those covering jobs which are paid disproportionately with those of other members of crew or with amount of work performed.—Page 1241.

Small lot buying has stabilized steel prices. Producers realize that price-cutting under present conditions of small tonnage buying will yield only a few additional tons of business. Under old conditions, when purchases were much larger, there was a stronger temptation to cut prices.—Page 1239.

Pension plans often prove far more costly than anticipated. They may easily amount to 10 per cent of current payroll, and have been known to mount to 37 per cent. Aggregate pension payments increase for about 50 years after the number of employees has become constant. Expense of administration is 10 per cent.—Page 1212.

PERSONAL

George L. Bitting has been appointed director of sales for the Bunting Brass & Bronze Co., Toledo, Ohio. He has specialized in the requirements of the automotive industry for the last 15 years, his most recent connections with the Standard Welding Co. and the Eaton Axle Co., both of Cleveland.

GEORGE L. BITTING

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A. M. LeTellier, formerly assistant general sales manager of the Union Drawn Steel Co., Beaver Falls, Pa., has been appointed vice-president and director of sales of the Cuyahoga Steel & Wire Co., Bedford, Ohio. During the last 15 years he has served as assistant chief chemist, Carnegie Steel Co., Pittsburgh; as chief metallurgist, Wickwire Steel Co., Buffalo, and as chief metallurgist, Peerless Drawn Steel Co., Massillon, Ohio. W. L. Rowe has been appointed Eastern representative of the Cuyahoga company with headquarters in the Fisk Building, New York, and R. M. Hartzell, recently with the Carnegie Steel Co. at Cincinnati, has been made its representative in southern Ohio and Indiana.

—

C. R. Swenson, former superintendent of the Oakes Co., Indianapolis, is now associated with the Indiana Pressed Steel Co., Muncie, Ind., as general superintendent.

—

Charles G. Schott has resigned, effective May 1, as St. Louis district sales manager Republic Iron & Steel Co., to go with the Wilson Stove Co., Metropolis, Ill. He has been with the Republic company for 22 years and in charge of its St. Louis office for three years. His successor will be James B. Beyer, with the company since 1912 and in charge of Youngstown district sales for the past three years. He served in various divisions of the operating department before entering sales work.

—

William W. Gager, who has been receiver of the Bantam Ball Bearing Co., Litchfield, Conn., was made assistant to W. S. Rogers, president and general manager of the company, at the termination of the receivership recently.

—

R. H. Clore, formerly associated with the National Carbon Co., Cleveland, has been appointed representative in the Cincinnati territory for the United States Electrical Tool Co., Cincinnati. Ralph J. Cook has also been made a special representative of the tool company.

—

A. Kastello has been named district sales representative in Eastern Canada, Montreal and Quebec for the Detroit Stoker Co., Detroit, and will have headquarters at 915 New Birks Building, Montreal. During the war he served as mechanical superintendent in the Canadian Department of Public Works, having had charge of a large explosive plant. He has also acted as a consulting engineer on power plant problems for a number of Canadian industries.

—

W. Scott Thomas has been appointed district representative at Providence for the Shanafelt Mfg. Co., Canton, Ohio, and will have headquarters at 303 National Exchange Bank Building, Providence.

—

W. O. Forman, until recently mechanical superintendent of the Boston & Maine Railroad, has entered the service of Manning, Maxwell & Moore, Inc., as assistant to Vice-President Frank J. Baumis. For the present Mr. Forman will specialize in factory operations and methods at the Putnam and the Shaw factories of Manning, Maxwell & Moore.

—

Henry D. Sharpe, president Brown & Sharpe Mfg. Co., Providence, R. I., and chairman of the foreign commerce advisory committee of the Chamber of Commerce of the United States will preside over a joint foreign commerce session of the chamber at the third Pan-American commercial conference to be held in Washington in conjunction with the meetings of these two organizations simultaneously on May 2 to 5. He will also address the general session of the chamber on the business outlook from the foreign commerce viewpoint.

—

Guy Wehr has resigned as superintendent of the blast furnaces of the Otis Steel Co., Cleveland, and become superintendent of the Steubenville, Ohio, furnaces of the Wheeling Steel Corporation. He has been succeeded by James Williams, who has been assistant superintendent of the Otis furnaces.

—

G. G. Mandt, chief engineer of the Inland Construction Equipment company, Keokuk, Iowa, has resigned, to devote himself to manufacture of his own patent specialties and to the operation of an experimental shop at 805 Main Street, Keokuk. He was formerly associated with the Moline Plow Co., William Galloway Co., Waterloo, Iowa, and the Queen City Plow Works, Sioux Falls, S. D. He joined the Inland company and its parent company, the Mandt Body Co., in its organization seven years ago.

—

Harold F. Wood, metallurgist of the Ingalls-Shepard division of the Wyman Gordon Co., Harvey, Ill., addressed 50 members of the Tri-City chapter of the American Society for Steel Treating at the LeClaire Hotel, Moline, Ill., last week, upon the development of modern drop forging.

—

W. S. Horner, president of the National Association of Sheet and Tin Plate Manufacturers since its organization Oct. 1, 1916, has resigned. Action on his resignation and probably upon his successor will be taken at a special meeting of the members of the association to be held in Pittsburgh on April 28.

—

Charles A. Fisher has been elected president Jones & Laughlin Steel Corporation to succeed William Larimer Jones, who died last November. Mr. Fisher has been vice-president in charge of finance since the creation of the present corporation in 1923. B. F. Jones, III, a grandson of the late B. F. Jones, who founded the business in 1850, who has been secretary since the formation of the present corporation, now becomes a vice-president. T. M. Girdler, vice-president in charge of operations, was made a member of the executive committee. All other officers and directors were re-elected. Mr. Fisher, whose entire business career has been with the company, entered the employ of the Jones & Laughlin Steel Co. as a bookkeeper in 1898. From this beginning he rose successively through the positions of assistant auditor, assistant treasurer, treasurer, assistant to the president and vice-president, to his present place as president of the corporation. B. F. Jones, III, came with the company as assistant treasurer in January, 1919, after his discharge from service with the United States Army as a second lieutenant, to which service he volunteered while a student in Princeton University.

—

Frank Purnell, assistant president, and H. G. Dalton, first vice-president, both of the Youngstown Sheet & Tube Co., and Harry S. Coulby, Cleveland, have been elected directors of the Youngstown company, the board having been increased April 26 from 11 to 14 members. Mr. Dalton has been a member of the executive committee.

John A. Coakley, who has been division freight agent of the American Steel & Wire Co., in charge of traffic in the Cleveland territory, has been appointed general traffic manager of that company. Mr. Coakley, who has been in the traffic department since he was a boy, will make his headquarters in Cleveland.

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Henry A. Roemer, who will be president of the Continental Steel Corporation, Kokomo, Ind., to be formed by the consolidation of the Superior Sheet Steel Co., Canton, Ohio, Kokomo Steel & Wire Co., Kokomo, Ind., and Chapman-Price Steel Co., Indianapolis, organized the Superior Sheet Steel Co. in 1919 and has been its active head since that time. At the age of 14 he secured employment with the Struthers Furnace Co., Struthers, Ohio, and a little later was in the Struthers works of the American Sheet Steel Co., of which he became superintendent soon after becoming of age. Later he was in charge of operations of the sheet mills of the Youngstown Sheet & Tube Co. In 1913 he went with the Canton Sheet Steel Co. and operated that company's plant until 1919.

—

Clarence W. Head of the Aluminum Co. of America has been elected president of the Cleveland Purchasing Agents' Association, Cleveland. H. N. Williams, Scott & Fetzer Co., is treasurer and Harry Beechhold, Cleveland Frog & Crossing Co., is secretary. The new directors include W. W. MacMillen, National Malleable & Steel Castings Co., Elmer E. Ering, Foote-Burt Co., and E. M. Evans, Leece-Neville.

—

Lawrence Richardson, who has been made mechanical engineer of the Boston & Maine Railroad, will have supervision of locomotive and car repair shops. He is a graduate of Cornell University in the class of 1910. Mr. Richardson succeeds W. O. Forman, who is to join the staff of Manning, Maxwell & Moore, Inc.

—

Roger B. Ladd, affiliated with Taylor & Fenn Co., Hartford, Conn., for six years, has resigned, to become associated with Adams, Merrill & Co., investment bankers.

—

B. M. Shaw, foundry superintendent Walker & Pratt Mfg. Co., Watertown, Mass., and Norman Russell, Newburyport, Mass., will go abroad next month with the Rotarians.

—

J. P. Alexander has been made New England district manager of the Westinghouse Electric & Mfg. Co. in charge of sales and service. A native of Chambersburg, Pa., Mr. Alexander was graduated from Lafayette in 1907. Since then he has been associated with the Westinghouse company. He succeeds George H. Cox, who becomes sales manager, South Philadelphia Westinghouse Works.

—

Ralph M. Roosevelt, plant manager Eagle-Picher Lead Co., Hillsboro, Ill., has been appointed vice-president of the company and transferred to New York, where he will be in charge of its branch office. A graduate in mechanical engineering at the University of Michigan, Mr. Roosevelt has held executive positions with the Matthiessen & Hegler Zinc Co., LaSalle, Ill.; Hegler Zinc Co., Danville, Ill., and United Zinc & Chemical Co., Kansas City. Later he became associated with William Lanyon in building and operating a zinc smelter and sulphuric acid plant which was sold to the Eagle-Picher Lead Co., Mr. Roosevelt remaining in charge. For the last five years he has been chairman of the arrangements committee of the conventions of the American Zinc Institute.

—

J. L. Kilpatrick, director and vice-president of the Western Electric Co., has resigned to become vice-president in charge of operation of the New York Telephone Co. He is succeeded by W. G. Teague, for the past three years general manager of installation for the Western Electric Co. Carl Whitmore of Chicago succeeds Mr. Teague as general manager of installation, and he in turn is succeeded by J. D. Danner of the Hawthorne Works, Chicago, as general superintendent of installation for the western zone.

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J. A. Quay has been appointed assistant manager of sales, Union Drawn Steel Co., Beaver Falls, Pa., in charge of sales promotion, to succeed A. M. Le Tellier, who resigned recently to go with the Cuyahoga Steel & Wire Co., Cleveland. Mr. Quay has been with the company for the past 11 years, the last 10 years in charge of purchases and advertising, and will continue in his new position to handle the latter activity. J. H. Graebing, formerly assistant purchasing agent, has been appointed purchasing agent.

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Carl L. Huff, for a number of years in the sales department of Bliss & Laughlin, Inc., Harvey, Ill., manufacturer of turned shafting and cold-finished products, has been appointed sales manager in charge of the Chicago district. He was formerly associated with the Steel & Tube Co. of America, as assistant purchasing agent, and with the Illinois Steel Co., department of metallurgy and inspection, Gary Works. During the war he served in the United States Navy as an inspector of tests, Bureau of Steam Engineering.

OBITUARY

WILLIAM GOODMAN, vice-president in charge of manufacturing and engineering of the Worthington Pump & Machinery Corporation, New York, died at a hospital in that city on April 21, aged 52 years. He was born at Cincinnati, and following graduation from Harvard University in 1896, entered the engineering department of the Laidlaw, Dunn, Gordon Co., Cincinnati. When that company was absorbed by the Worthington organization, he was made manager of the Cincinnati branch. During the late war he was in charge of the manufacture of munitions in the Worthington plant at Hazleton, Pa. In 1918 he came to New York as assistant to the president of the company and four years later was made vice-president. The new double-action Diesel engine which the United States Shipping Board recently adopted for its vessels was brought out under his supervision, and he was also instrumental in the development of the feather valve air compressor. Mr. Goodman was a member of the American Society of Mechanical Engineers.

WILLIAM GOODMAN

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GEORGE GERRY WHITE, secretary Phoenix Iron Co., Philadelphia, a post he had held for 65 years, died suddenly April 26 in his eighty-eighth year, at his home in Camden, N. J. Mr. White, who entered the employ of the company when he was a boy of about 16 years, was actively engaged until about two years ago. He leaves a son, William H. White, who is with the Phoenix Iron Co., and a daughter, Helen White.

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CHARLES W. KELLY, president Bruce-Macbeth Engine Co., Cleveland, died April 20 after a long illness, aged 65 years. At one time he was an engineer in the employ of the Brown Hoisting Machinery Co., Cleveland.

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CHARLES L. HEINBACH, superintendent of the Standard Steel Car Co. plant at Hammond, Ind., died April 19.

Where Steel Exports Went in Nine Months

Canada Took 351,452 Tons of Nine Leading Items—Japan Retains Second Position with 147,777 Tons, Followed by Cuba with 42,636 Tons—Brazil Took 29,335 Tons of Rails and Argentina 28,606 Tons of Tin Plate

Exports from United States, by Countries of Destination

(In Gross Tons)

	Steel Plates				Galvanized Sheets				Black Steel Sheets			
	March		Nine Months Ended March		March		Nine Months Ended March		March		Nine Months Ended March	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Total	*10,027*	*13,250*	*99,353*	*83,252*	*13,428*	*15,751*	*134,652*	*116,542*	*15,405*	*14,203*	*137,543*	*102,160*
Canada	9,143	12,028	75,222	71,161	2,936	4,052	21,551	20,251	6,587	5,724	52,014	35,977
Japan (a)	64	37	418	466	227	234	2,533	3,821	7,115	7,492	62,414	52,618
Cuba	35	254	720	1,412	906	645	11,418	9,562	137	12	781	648
Philippine Islands	109	....	....	933	1,068	1,901	17,456	13,949	580	....	....	....
Mexico	62	58	1,120	1,295	668	880	5,089	6,717	....	63	....	....
Argentina	....	....	....	928	1,148	959	8,368	6,102	228	59	1,946	894
Chile	....	....	....	....	78	501	5,736	1,201	13	....	....	....
Colombia	....	....	....	....	595	543	5,681	6,297	....	....	....	....

	Steel Rails				Barbed Wire				Plain and Galvanized Wire			
	March		Nine Months Ended March		March		Nine Months Ended March		March		Nine Months Ended March	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Total	*13,701*	*7,113*	*172,780*	*105,525*	*3,463*	*4,905*	*27,771*	*49,232*	*2,663*	*3,813*	*19,042*	*26,831*
Canada	788	2,235	18,066	16,040	708	852	2,735	2,070	1,912	1,497	7,850	9,772
Japan (a)	1,255	2,227	32,150	9,757	....	....	....	....	11	26	915	606
Cuba	295	502	16,923	21,555	63	109	1,207	3,095	70	207	893	1,220
Philippine Islands	....	188	2,919	2,413	....	575	1,448	4,379	....	8	....	89
Mexico	865	68	9,062	4,224	449	419	2,962	3,656	250	377	2,322	3,515
Argentina	....	....	....	....	....	621	699	5,484	....	861	264	2,885
Chile	7	346	1,293	3,913	....	....	....	....	....	11	....	46
Colombia	152	....	1,916	5,023	302	476	4,616	5,240	....	24	....	248
Brazil	....	130	29,335	3,880	237	252	2,184	8,118	23	7	473	2,521
Australia	....	....	....	....	....	70	....	1,109	....	....	913	....
British S. Africa	....	....	....	....	....	165	1,235	3,153	....	....	....	1,522

	Tin Plate				Plain Heavy Structural Material				Steel Bars			
	March		Nine Months Ended March		March		Nine Months Ended March		March		Nine Months Ended March	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Total	*26,817*	*15,500*	*249,903*	*133,984*	*8,976*	*13,408*	*106,348*	*93,812*	*9,115*	*13,622*	*101,208*	*91,985*
Canada	5,204	3,538	39,779	25,258	7,182	10,014	81,595	71,873	5,648	9,236	58,993	57,914
Japan (a)	5,741	3,376	45,221	36,147	436	915	2,866	1,009	213	140	1,260	1,014
Cuba	275	154	3,799	2,509	718	892	4,883	7,283	297	189	2,012	4,341
Mexico	39	475	8,361	3,501	....	....	....	....	....	745	....	2,017
Argentina	4,250	402	28,606	4,775	13	....	....	....	....	....	....	....
Chile	163	926	5,598	4,940	163	155	5,194	1,496	....	....	....	....
China	3,240	682	22,460	15,857	....	....	....	....	....	....	....	....
British India	154	....	11,601	9,854	....	....	....	....	....	....	....	....
United Kingdom	607	....	7,968	....	....	....	....	....	957	1,162	17,611	9,640
Italy	1,466	2,494	3,247	3,962	....	....	....	....	....	....	....	....

(a) Including Chosen.

Destination of Iron and Steel Exports From the United States

(In Gross Tons)

Country of Destination	March, 1927	First Three Months 1927	First Three Months 1926
North and Central America and the West Indies	*91,734*	*242,245*	*256,876*
Canada and Newfoundland	74,046	182,063	188,601
Cuba	5,199	21,920	23,986
Mexico	6,547	19,818	22,622
Guatemala	599	2,544	5,420
Salvador	608	1,247	4,596
Panama	1,573	3,899	2,523
British West Indies	1,069	3,026	1,877
Other West Indies	899	3,973	4,027
Other Central America	1,194	3,755	3,224
South America	*27,029*	*110,674*	*89,588*
Argentina	7,552	24,783	19,064
Brazil	7,458	24,779	8,443
Chile	1,415	6,102	15,060
Colombia	4,016	22,700	16,814
Peru	1,183	3,956	8,863
Venezuela	4,008	23,183	19,046
Other South America	1,397	5,171	2,298
Europe	*8,462*	*35,028*	*32,946*
France	77	670	5,272
Italy	1,520	4,108	7,005
Rumania	17	785	1,402
Russia	536	1,149	2,704
Turkey	31	704	628
United Kingdom	4,526	20,069	11,841
Other Europe	1,755	7,543	4,088
Far East	*42,710*	*160,047*	*117,913*
Australia	903	7,776	4,785
British Malaya	811	4,250	3,085
China	4,201	22,252	7,950
Dutch East Indies	2,516	12,025	7,208
India	3,275	11,559	10,837
Japan and Chosen	21,941	80,748	66,415
Kwang-Tung	3,840	4,517	3,406
Philippine Islands	3,825	11,455	12,818
Other Asia and Far East	1,398	5,464	1,409
Africa	*1,159*	*4,463*	*3,964*
British South Africa	141	1,513	1,969
Egypt	935	1,411	1,212
Portuguese East Africa	2	1,149	589
Other Africa	81	390	134
Total	171,094	552,457	501,227

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The production of steel ingots and castings followed the higher output of pig iron, amounting to 107,381 tons in March, a gain of 93 per cent over the output of 55,620 tons in February, and 83 per cent above the 58,765 tons reported for March, 1926. Steel ingots accounted for most of the increase by advancing to 102,141 tons from 52,144 tons in February.

European Export Quotations Decline

Buyers Await Result of Negotiations for Semi-Finished Cartel—German Home Market Strong—Wire Cartels Seek Domestic Monopoly

(*By Cable*)

LONDON, ENGLAND, April 25.

PIG iron is quiet, with consumers purchasing only for immediate needs. Cleveland makers are maintaining prices although coke is weakening. Hematite continues dull, the supply exceeding the demand and prices soft. Foreign ore is quiet.

Finished steel makers are busy, particularly on shipyard steel, but new demand is declining and prices are maintained with difficulty.

Tin plate is weak and demand poor. The situation has become so unsatisfactory that some minor works have closed. Several Welsh sheet bar makers, unable to secure sufficient orders, are closing down, as foreign made sheet bars are much cheaper. For July shipment, tin plate has sold at 19s. 3d. ($4.65) per base box, f.o.b. port. Prompt shipment tin plate is now 19s. 14½d. to 19s. 7½d. ($4.69 to $4.74) per base box, although makers using British steel are still asking 20s. and more.

Galvanized sheets are slack and makers are prepared to grant concessions on desirable business. Black sheet buying is moderate and demand is principally for small lots, including some heavy and some light gages for Japanese users.

Continental markets are weaker, but business is still small, British users not being active buyers of semi-finished material. Other markets are also slow and the general situation is further complicated, as many works are in need of tonnage. The general tendency is to await the outcome of the next meeting of the International Raw Steel Cartel, when negotiations for the formation of a semi-finished steel syndicate will be resumed.

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BELGIAN PRICES SOFT

Delay in Forming Beam and Semi-Finished Syndicate Causes Depression

ANTWERP, BELGIUM, April 13.—Business is again uncertain and inactive. Prices are weak and it is apparently only the lack of important purchasing that is preventing a general decline in quotations. Mills are endeavoring to maintain their original quotations, but in many cases need for tonnage has forced them to offer concessions, which are expected by buyers. Meanwhile, French mills are quoting low prices and German competition is still a serious factor. A further depressing influence on the market was the failure of recent negotiations for the formation of a syndicate to control beams and semi-finished material. The next meeting for this purpose will not be held until May and uncertainty of the market will probably continue until then.

Pig Iron.—Buying is light and the syndicate price for No. 3 phosphoric foundry iron has been reduced to 650 to 660 fr. per metric ton ($25.42 to $25.80) or 132 Belgian francs. Even lower than the official price is reported to have been done on domestic business, and German iron is being offered at less. British consumers have been buying, but sales have not been at more than £3 6s. to £3 7s. per ton, about $16.00 to $16.25, f.o.b. Antwerp, Ghent or Brugge. The syndicate price for half-washed furnace coke has been reduced to 44 fr. (Belgian), $6.09 per ton, but German quotations are still lower.

Semi-Finished Material.—The announcement of negotiations for the formation of a selling syndicate gave considerable strength to the market, but postponement of negotiations until May and lack of a definite agreement, have resulted in a general depression. Buyers are

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.85 per £ as follows:

Durham coke, del'd.	£1	3½s.				$5.70		
Bilbao Rubio ore†	1	2	to £1	2½s.		5.33	to	$5.45
Cleveland No. 1 fdy.	4	2½				20.00*		
Cleveland No. 3 fdy.	4	0				19.40*		
Cleveland No. 4 fdy.	3	19				19.15*		
Cleveland No. 4 forge	3	18½				19.03*		
Cleveland basic	3	15	to	3	15½	18.18	to	18.30
East Coast mixed	4	2½				20.00		
East Coast hematite	4	3				20.13		
Rails, 60 lb. and up.	7	15	to	8	5	37.58	to	40.01
Billets	7	5	to	7	10	35.16	to	36.37
Ferromanganese	15	0				72.75		
Ferromanganese (export)	15	0				72.75		
Sheet and tin plate bars, Welsh	6	5	to	6	10	30.31	to	31.52
Tin plate, base box	0	19½	to	1	0⅝	4.69	to	4.74
Black sheets, Japanese specifications.	14	5				69.11		
						C. per Lb.		
Ship plates	7	15	to	8	5	1.68	to	1.78
Boiler plates	11	0	to	11	10	2.38	to	2.49
Tees	8	10	to	9	0	1.84	to	1.95
Channels	7	15	to	8	5	1.68	to	1.78
Beams	7	10	to	8	0	1.62	to	1.73
Round bars, ¾ to 3 in.	8	5	to	8	15	1.78	to	1.89
Steel hoops	10	10	to	11	0	2.28	to	2.39
Black sheets, 24 gage	11	5				2.44		
Galv. sheets, 24 gage	14	15				3.19		
Cold rolled steel strip, 20 gage, nom.	14	0				3.03		

*Export price, 6d. (12c.) per ton higher.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

(Per Metric Ton)

Foundry pig iron: (a)								
Belgium	£3	8s.				$16.49		
France	3	8				16.49		
Luxemburg	3	8				16.49		
Basic pig iron:								
Belgium	3	5	to	£3	15s.	15.76	to	$18.18
France	3	5	to	3	15	15.76	to	18.18
Luxemburg	3	5	to	3	15	15.76	to	18.18
Coke	0	18				4.37		
Billets:								
Belgium	4	8				21.32		
France	4	8				21.32		
Merchant bars:						C. per Lb.		
Belgium	4	15				1.05		
Luxemburg	4	15				1.05		
France	4	15				1.05		
Joists (beams):								
Belgium	4	16				1.06		
Luxemburg	4	16				1.06		
France	4	16				1.06		
Angles:								
Belgium	4	15				1.05		
⅛-in. plates:								
Belgium (nominal)	6	7½				1.39		
Germany (nominal)	6	7½				1.39		
¼-in. ship plates:								
Belgium	6	0				1.32		
Luxemburg	6	0				1.32		
Sheets, heavy:								
Belgium	6	3	to	6	4	1.35	to	1.36
Germany	6	3	to	6	4	1.35	to	1.36

(a) Nominal.

Where Steel Exports Went in Nine Months

Canada Took 351,452 Tons of Nine Leading Items—Japan Retains Second Position with 147,777 Tons, Followed by Cuba with 42,636 Tons—Brazil Took 29,335 Tons of Rails and Argentina 28,606 Tons of Tin Plate

Exports from United States, by Countries of Destination

(In Gross Tons)

	Steel Plates				Galvanized Sheets				Black Steel Sheets			
	March		Nine Months Ended March		March		Nine Months Ended March		March		Nine Months Ended March	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Total	*10,027*	*13,250*	*99,353*	*83,252*	*13,428*	*15,751*	*134,652*	*116,542*	*15,405*	*14,203*	*137,543*	*102,360*
Canada	9,143	12,028	75,222	71,161	2,936	4,052	21,551	20,251	6,587	5,724	52,014	35,977
Japan (a)	64	37	418	466	227	234	2,533	3,821	7,115	7,492	62,414	52,618
Cuba	35	254	720	1,412	906	645	11,418	9,562	137	12	781	648
Philippine Islands	109	....	....	933	1,068	1,901	17,456	13,949	580	....	....	....
Mexico	62	58	1,120	1,295	668	880	5,089	6,717	....	63	....	....
Argentina	....	....	....	928	1,148	959	8,368	6,102	228	59	1,946	894
Chile	....	....	....	....	78	501	5,736	1,201	13	....	....	....
Colombia	....	....	....	....	595	543	5,681	6,297	....	....	....	....

	Steel Rails				Barbed Wire				Plain and Galvanized Wire			
	March		Nine Months Ended March		March		Nine Months Ended March		March		Nine Months Ended March	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Total	*13,701*	*7,113*	*172,780*	*105,525*	*3,463*	*4,905*	*27,771*	*49,232*	*2,663*	*3,813*	*19,042*	*26,831*
Canada	788	2,235	18,066	16,040	708	852	2,735	2,070	1,912	1,497	7,850	9,772
Japan (a)	1,255	2,227	32,150	9,757	....	....	....	....	11	26	915	606
Cuba	295	502	16,923	21,555	63	109	1,207	3,095	70	207	893	1,220
Philippine Islands	....	188	2,919	2,413	....	575	1,448	4,379	....	8	....	89
Mexico	865	68	9,062	4,224	449	419	2,962	3,656	250	377	2,322	3,515
Argentina	....	....	....	....	....	621	699	5,484	....	861	364	2,885
Chile	7	346	1,293	3,913	....	....	....	....	....	11	....	46
Colombia	152	....	1,916	5,023	302	476	4,616	5,240	....	24	....	248
Brazil	....	130	29,335	3,880	237	252	2,184	8,118	23	7	473	2,521
Australia	....	....	....	....	....	70	....	1,109	....	....	913	....
British S. Africa	....	....	....	....	....	165	1,235	3,153	....	....	....	1,522

	Tin Plate				Plain Heavy Structural Material				Steel Bars			
	March		Nine Months Ended March		March		Nine Months Ended March		March		Nine Months Ended March	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Total	*26,817*	*15,500*	*249,903*	*133,984*	*8,976*	*13,408*	*106,348*	*93,812*	*9,115*	*13,622*	*101,208*	*91,985*
Canada	5,204	3,538	39,779	25,258	7,182	10,014	81,595	71,873	5,648	9,236	58,993	57,914
Japan (a)	5,741	3,376	45,221	36,147	436	915	2,866	1,009	213	140	1,260	1,014
Cuba	275	154	3,799	2,509	718	892	4,883	7,283	297	189	2,012	4,341
Mexico	39	475	8,361	3,501	....	....	....	....	....	745	....	2,017
Argentina	4,250	402	28,606	4,775	13	....	....	....	....	....	....	....
Chile	163	926	5,598	4,940	163	155	5,194	1,496	....	....	....	....
China	3,240	682	22,460	15,857	....	....	....	....	....	....	....	....
British India	154	....	11,601	9,854	....	....	....	....	....	....	....	....
United Kingdom	607	....	7,968	....	....	....	....	....	957	1,162	17,611	9,640
Italy	1,466	2,494	3,247	3,962	....	....	....	....	....	....	....	....

(a) Including Chosen.

Destination of Iron and Steel Exports From the United States

(In Gross Tons)

Country of Destination	March, 1927	First Three Months 1927	First Three Months 1926
North and Central America and the West Indies	*91,734*	*242,245*	*256,876*
Canada and Newfoundland	74,046	182,063	188,601
Cuba	5,199	21,920	23,986
Mexico	6,547	19,818	22,622
Guatemala	599	2,544	5,420
Salvador	608	1,247	4,596
Panama	1,573	3,899	2,523
British West Indies	1,069	3,026	1,877
Other West Indies	899	3,973	4,027
Other Central America	1,194	3,755	3,224
South America	*27,029*	*110,674*	*89,588*
Argentina	7,552	24,783	19,064
Brazil	7,458	24,779	8,443
Chile	1,415	6,102	15,060
Colombia	4,016	22,700	16,814
Peru	1,183	3,956	8,863
Venezuela	4,008	23,183	19,046
Other South America	1,397	5,171	2,298
Europe	*8,462*	*35,028*	*32,946*
France	77	670	5,272
Italy	1,520	4,108	7,005
Rumania	17	785	1,403
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Cleveland No. 3 fdy.	4	0				19.40*		
Cleveland No. 4 fdy.	3	19				19.15*		
Cleveland No. 4 forge	3	18½				19.03*		
Cleveland basic	3	15	to	3	15½	18.18	to	18.30
East Coast mixed	4	2½				20.00		
East Coast hematite	4	3				20.13		
Rails, 60 lb. and up	7	15	to	8	5	37.58	to	40.01
Billets	7	5	to	7	10	35.16	to	36.37
Ferromanganese	15	0				72.75		
Ferromanganese (export)	15	0				72.75		
Sheet and tin plate bars, Welsh	6	5	to	6	10	30.31	to	31.52
Tin plate, base box	0	19⅓	to	1	0⅔	4.69	to	4.74
Black sheets, Japanese specifications	14	5				69.11		
						C. per Lb.		
Ship plates	7	15	to	8	5	1.68	to	1.78
Boiler plates	11	0	to	11	10	2.38	to	2.49
Tees	8	10	to	9	0	1.84	to	1.95
Channels	7	15	to	8	5	1.68	to	1.78
Beams	7	10	to	8	0	1.62	to	1.73
Round bars, ¾ to 3 in.	8	5	to	8	15	1.78	to	1.89
Steel hoops	10	10	to	11	0	2.28	to	2.39
Black sheets, 24 gage	11	5				2.44		
Galv. sheets, 24 gage	14	15				3.19		
Cold rolled steel strip, 20 gage, nom.	14	0				3.03		

*Export price, 6d. (12c.) per ton higher.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

(Per Metric Ton)

Foundry pig iron: (a)								
Belgium	£3	8s.				$16.49		
France	3	8				16.49		
Luxemburg	3	8				16.49		
Basic pig iron:								
Belgium	3	5	to £3	15s.		15.76	to	$18.18
France	3	5	to	3	15	15.76	to	18.18
Luxemburg	3	5	to	3	15	15.76	to	18.18
Coke	0	18				4.37		
Billets:								
Belgium	4	8				21.33		
France	4	8				21.33		
Merchant bars:						C. per Lb.		
Belgium	4	15				1.05		
Luxemburg	4	15				1.05		
France	4	15				1.05		
Joists (beams):								
Belgium	4	16				1.06		
Luxemburg	4	16				1.06		
France	4	16				1.06		
Angles:								
Belgium	4	15				1.05		
¼-in. plates:								
Belgium (nominal)	6	7½				1.39		
Germany (nominal)	6	7½				1.39		
⅜-in. ship plates:								
Belgium	6	0				1.32		
Luxemburg	6	0				1.32		
Sheets, heavy:								
Belgium	6	3	to	6	4	1.35	to	1.36
Germany	6	3	to	6	4	1.35	to	1.36

(a) Nominal.

withholding orders and pressing for large concessions, which are often granted. Billets are quiet and supplies available are not large. The current asking price is £4 10s. to £4 12s. 6d. per ton ($21.82 to $22.43), f.o.b. Antwerp. Blooms are softer with quotations as low as £4 3s. 6d. for 6-in. to 9-in., £4 6s. 6d. ($20.97) for 5-in. and £4 7s. 6d. ($21.21) for 4-in.

Finished Material.—Several mills have been offering concessions in price to obtain sufficient tonnage to continue operation. In addition, French and German competition is strong, with sellers in those countries offering lower prices than for some time. Bar prices have dropped to about £4 18s. to £4 18s. 6d. (1.08c. to 1.09c. per lb.) on small orders and miscellaneous specifications. French and German sellers have quoted as low as £4 17s. 6d. per ton (1.07c. per lb.). Beam prices are soft, varying considerably. French quotations have been as low as £4 16s. per ton (1.06c. per lb.) and as low as £4 15s. (1.05c. per lb.) is reported to have been done on normal specifications. The lowest Belgian quotation thus far reported is £4 17s. per ton (1.07c. per lb.). Corrugated bars are quoted at £5 8s. (1.19c. per lb.), wire rods at £5 6s. per ton (1.17c. per lb.) and cold rolled hoops at £8 17s. 6d. per ton (1.95c. per lb.). The sheet market is stronger than the market on other steel products, particularly in the heavy gages, which are quoted at about £6 2s. 6d. per metric ton (1.35c. per lb.).

GERMAN BUSINESS ACTIVE

Mills Well Booked with Domestic Orders Neglect Export—Agitation for Higher Prices

BERLIN, GERMANY, April 13.—Business improvement has greatly accelerated in the past few weeks and with a heavy increase in the demand for short-term credits, settlements were large last month and interest rates average considerably higher. In the second half of March the number of publicly supported unemployed was reduced from 1,436,000 to 1,131,000, which compares with 1,942,000 unemployed on April 1, 1926. Since the middle of January the number of unemployed has declined by 700,000.

The trade ministry's recent monthly report shows improvement in almost all branches of industry, particularly in iron, steel, engineering, shipbuilding and electrical manufacturing. The increase in iron and steel business is almost entirely confined to the domestic market. Evidence of improvement in foreign trade is confined to sporadic recoveries followed by depression. In most cases, however, steel works are fully booked with business for the next 90 days or more. As a result of the good domestic demand, many producers are neglecting the export market.

The pig iron market is active and there has been heavy purchasing of semi-finished material, which, at times, has resulted in shortage of supplies. Export of semi-finished steel is quiet, with British purchasers inactive. Domestic buying of structural material and bars is large and shipments of bars to Holland are increasing. Shipbuilding activity in Germany is at a high level and early this month some shipyards reported that delays were being occasioned by the slow delivery of mills.

All works in the United Steel Works are operating full and it is estimated in some quarters that the corporation's sales in March totaled close to 600,000 tons, which is about 18 per cent better than the former record made in February. The active business in textile manufacturing has increased demand for textile machinery and machine tools. Buying of agricultural equipment is reported about normal for this season.

Manufacturers of screws and rivets are well booked with business but there are continued complaints of concessions in prices. At present a plan is being discussed for the formation of a selling syndicate to include all makers of screws.

The number of unemployed in the Solingen district has declined to about 2600 compared with close to 20,000 during the worst period of the depression in 1926. The average price of exported steel and cutlery from this district has recently declined, partly as a result of the increase in the volume of cheaper products sold to the United States and partly because of the recent reduction of prices made to dispose of old stocks.

The Pig Iron Syndicate has announced unchanged prices for May, as follows: Hematite, 93.50m. ($22.15) per metric ton; No. 1 foundry, 88m. ($20.85); No. 3 foundry, 86m. ($20.37); and Siegerland steel making iron, 88m. ($20.85). Spiegeleisen, 10 to 12 per cent manganese is quoted at 112m. ($26.53) per metric ton.

The question of domestic prices of products controlled by the German Steel Syndicate is becoming acute. Although there has been no official announcement, the plan for a general increase in the domestic market is being considered and urged by the entire heavy steel industry. Consuming manufacturers, however, through their association known as the "Avi," are developing determined opposition. The domestic market is maintained permanently above the international market by the tariff. It was agreed in 1925, by the producers and consumers of steel in Germany, that domestic prices were not to be increased generally unless a heavy buying movement developed, when the producers might take "reasonable advantage" of the better business. The consumers claim that although trade is better it does not warrant a price advance.

SYNDICATES SEEK MONOPOLY

Rod Makers to Sell Only to Wire Syndicate—Non-Members Import Rods

HAMBURG, GERMANY, April 11.—An agreement, which is practically a monopoly if carried out, has been signed by the associations of wire makers and wire-rod makers. Under the terms of this contract the wire-rod association agrees to cease selling to any manufacturers who are outside the wire makers' association. This will either cut off the supply of raw material to these outsiders or force them to join the wire makers' association at what they consider to be unfavorable terms, a quota of about two-thirds of their capacity. Manufacturers outside the wire makers' association produce about 6 per cent of the total wire output.

This action has aroused considerable discussion and some protest, as this may serve, it is pointed out, as a precedent for action by other associations to force complete membership by embarrassing non-member competitors. The outsiders have entered a protest with the German High Court for Cartels, but decision by the court may be delayed. Meanwhile, many of these works, with their sources of supply gone, may be forced to either suspend operation or join the cartel.

In some quarters the situation is not considered as seriously as this, it being pointed out that a number of wire rod makers are also outside the syndicate, so that non-member wire makers should be able to cover about 50 per cent of their wire rod requirements at non-member wire rod mills. However, many of these wire rod makers who are still outside the wire rod association are expected to join soon, which would reduce the sources of supply to an even smaller percentage.

A temporary solution to the problem seems to have been found, however, in imports. Merchants in Holland and Czechoslovakia, it appears, are importing German wire rods, purchased from members of the wire rod association. These rods are then offered to German wire makers not members of the wire association and returned to Germany.

Despite this manipulation of the product the price is very close to the German domestic market. The current quotation on wire rods for export is £5 3s. to £5 7s. per metric ton ($24.98 to $25.94) delivered free to the frontier. The foreign merchant who has purchased the rods transships them to the German consumer, paying the German duty of £1 5s. 6d. per ton ($6.18), which increases the price to £7 0s. 6d. per ton ($34.07). To this may be added the profit of the foreign merchant and the freight rate to the plant of the German buyer. As the current domestic price in Germany is £7 7s. 3d. per ton ($35.70), f.o.b. makers' works and as the industrial center of the wire business is near the frontier, it is obvious that the delivered product costs the German consumer the same, or but little more than delivery direct from the German mill.

Machinery Markets and News of the Works

BUSINESS IS DRAGGING

Machine Tool Orders This Month May Not Equal March Rate

Lack of Important Buying by the Automobile Industry Has Had Decided Effect on Gross Sales This Year

WITH only a few business days remaining in April, it is apparent that sales of machine tools will not show a gain over those of March, and may show a loss in some lines. Business is dragging in nearly all sections of the country, the hesitation of manufacturers in placing orders making sales efforts more and more difficult.

Lack of important buying this year by the automobile industry has had a marked effect on the total volume of sales for the first four months as compared with the same period last year.

Production schedules in some machine tool plants have been cut down to conform to the diminishing volume of unfilled orders.

No very large orders have been placed during the week, but some of fair size have developed. The University of Chicago bought several machines and a Milwaukee company added five machines to its equipment. The Baltimore & Ohio ordered a 90-in. locomotive wheel quartering machine and the Pullman Car & Mfg. Corporation took a 53-in. boring mill.

New York

NEW YORK, April 26.

MISCELLANEOUS orders for machine tools are in about the same volume as in preceding weeks of this month, which leaves much to be desired from the standpoint of sellers. There have been a few railroad orders, including a 90-in. locomotive wheel quartering machine for the Baltimore & Ohio; a valve seat planer for the Monongahela; a 53-in. boring mill for the Pullman Car & Mfg. Corporation, Chicago, and the orders of the Brooklyn-Manhattan Transit Co., mentioned a week ago, some of which have been distributed within the past week. Other orders include the following: A tool company at Rockford, Ill., crank shaper; manufacturer at Ansonia, Conn., a traveling head shaper; a Denver, Colo., company, a steam hammer of 1500-lb. capacity; a Milwaukee manufacturer, a jig borer vertical shaper, two 13-in. lathes and one 16-in. lathe; a conveying machine manufacturer in San Francisco, a 20-in. lathe; an elevator manufacturer in New York, a die sinker; an airplane company in New Jersey, a vertical shaper; a machinery company at Pawtucket, R. I., a vertical surface grinder; a plumbing fixtures manufacturer in Chicago, a die sinker; a speedometer manufacturer in Chicago, a jig borer.

The D. H. Burrell Co., Little Falls, N. Y., manufacturer of dairy machinery, cream-separator equipment, etc., has asked bids on a general contract for a one-story addition, to cost about $65,000 with equipment.

The Isham Park Garage, Inc., 19 West Forty-fourth Street, New York, Joseph Horowitz, president, has asked bids on a general contract for a two-story service, repair and garage building, 125 x 500 ft., to cost in excess of $150,000 with equipment. Charles S. Clark, 441 East Tremont Avenue, is architect.

The Ford Motor Co., Detroit, has purchased an eight-story and basement factory at Long Island City, which it originally built for an assembling plant and later, 1920, sold to the Goodyear Tire & Rubber Co., Akron, Ohio; subsequently, it was resold to the Durant Motors, Inc., which leased it for other service. The structure totals about 500,000 sq. ft. of floor space and will be used by the Ford company, it is said, for a new Eastern assembling works for latest models. The assembling plant at Kearny, N. J., will be maintained as heretofore.

The Anaconda Copper Mining Co., 25 Broadway, New York, is completing plans for a new electrolytic zinc plant at Anaconda, Mont., to treat ores and concentrates from the Butte, Mont., Idaho and Utah districts. It will be equipped for an initial output of 10,000,000 lb. a month, and is reported to cost more than $1,500,000 with machinery.

The Board of Education, Tuckahoe, N. Y., plans the installation of manual training equipment in its proposed new high school to cost $650,000, for which bids will be asked on a general contract early in May. Tooker & Marsh, 101 Park Avenue, New York, are architects.

J. Edward Birmingham, 45 Watertown Avenue, Yonkers, N. Y., architect, has filed plans for a two-story automobile service, repair and garage building, 100 x 190 ft., at 5120 Broadway, New York, to cost about $110,000, with equipment.

The Western Electric Co., 195 Broadway, New York, manufacturer of telephone instruments, cables, etc., has awarded a general contract to Fred Kilgus, Inc., 13 South Sixth Street, Newark, N. J., for an addition, 140 x 200 ft., to its plant at Kearny, N. J., including improvements in buildings Nos. 15 and 16, to cost about $200,000.

The American Metal Co., 61 Broadway, New York, has concluded arrangements for a lease of the factory of the Balbach Smelting & Refining Co., Wilson Avenue, Newark, N. J., for expansion.

The Brooklyn Edison Co., Pearl and Willoughby Streets, Brooklyn, is having plans completed for a six-story general service, equipment and repair building at Fourth Avenue and Third Street, with garage and automobile repair department for company motor trucks and cars, to cost in excess of $900,000 with machinery. Voorhees, Gmelin & Walker, 342 Madison Avenue, New York, are architects.

The Piel Brothers Co., 116 Georgia Avenue, Brooklyn, has plans for a two-story steam power house at its beverage factory. Frank S. Parker, 280 Madison Avenue, New York, is engineer.

The Seaboard Refractories Co., Woodbridge Avenue, Raritan Township, N. J., manufacturer of fire brick, refractory products, etc., has plans for two one-story buildings, 80 x 300 ft., and 45 x 60 ft., to replace its plant recently destroyed by fire, and will begin work soon. The fire loss approximated $175,000 with equipment. G. T. Balz is head.

Frederick Powell, care of Kelly & Cowan, 921 Bergen Avenue, Jersey City, N. J., architects, has filed plans for a two-story foundry for the production of iron castings. It will cost close to $21,000 with equipment.

The American Lead Pencil Co., 500 Willow Avenue, Hoboken, N. J., has filed plans for a seven-story factory, 75 x 100 ft., to cost about $200,000 with equipment. Franklin Small, 366 Broadway, New York, is architect.

The Department of Public Safety, City Hall, Newark, is considering the construction of a new high pressure pumping plant in the Port Newark district for fire protection, consisting of four pumping units and auxiliary machinery with total capacity of 8000 gal. per min. James W. Costello is chief engineer of the Department of Public Affairs.

The Public Service Railway Co., Public Service Terminal, Newark, has awarded a general contract to the Wilhelms

Construction Co., 119 Division Street, Elizabeth, N. J., for a one-story service, repair and garage building for company buses, to cost in excess of $50,000 with equipment.

The Brace Pressed Steel Corporation, Elizabeth, N. J., has been organized with a capital of $100,000 to take over and expand the plant and business of the Brace Pressed Steel Co., 316 Port Avenue, Elizabeth, N. J. The new company is headed by W. B. Brace and H. F. Walsh.

The E. Poeter Co., 1168 South Grove Street, Irvington, N. J., manufacturer of bag frames, etc., has plans for a two-story addition, 65 x 100 ft., to cost $50,000 with equipment. William E. Lehman, 972 Broad Street, Newark, is architect.

The International Derrick & Equipment Co., Columbus, Ohio, manufacturer of oil, gas and artesian well drilling and pumping equipment and derricks, will remove its New York offices on May 1 from 30 Church Street to room 909, 74 Trinity Place.

The Air Reduction Co., Inc., 342 Madison Avenue, New York, has acquired the Interstate Oxygen Co., Wheeling, W. Va., with oxygen plants at Wheeling and Steubenville and Portsmouth, Ohio, and also the Compressed Gas Mfg. Co., with an acetylene plant at Huntington, W. Va.

Philadelphia

PHILADELPHIA, April 25.

PLANS are being completed by the Neel-Cadillac Co., Broad and Ridge Streets, Philadelphia, local representative for the Cadillac automobile, for an eight-story service, repair and sales building, 75 x 150 ft., to cost in excess of $200,000, with equipment. Philip S. Tyre, 114 South Fifteenth Street, is architect.

The Simonds Saw & Steel Co., Fitchburg, Mass., has concluded negotiations for the purchase of the Abrasive Co., Tacony and Fraley Streets, Philadelphia, manufacturer of grinding wheels, etc., with branch plant at Hamilton, Ont., and will continue operations under the same name as a subsidiary organization. The present management, it is said, will be retained.

Plans have been filed by the Freihofer Baking Co., Twentieth Street and Indiana Avenue, Philadelphia, for a three-story automobile service, repair and garage building for company trucks and cars, to cost $130,000 with equipment. C. B. Comstock, 110 West Fortieth Street, New York, is architect.

The Philadelphia Hardware & Malleable Iron Works, Inc., Ninth and Jefferson Streets, Philadelphia, has contracted with the William Steele & Sons Co., 219 North Broad Street, engineer and architect, for the erection of its proposed plant. It will consist of two buildings and power house, to cost close to $125,000.

The David Lupton's Sons Co., Allegheny and Tulip Streets, Philadelphia, manufacturer of steel sash, has arranged for the purchase of two two-story factory buildings at the corner of Ontario and Janney Streets, on site 100 x 170 ft., and will use for expansion. It has also acquired property, 155 x 170 ft., at Tulip and East Ontario Streets.

Fire, April 21, destroyed the power plant and pumping station of the Edwin H. Jacobs Mushroom Co., Green Hill, near West Chester, Pa., with other buildings at the plant, loss totaling $200,000 with equipment.

The Pennsylvania Railroad Co., Philadelphia, is said to have plans under way for a one-story machine and repair shop at its yards at Sunbury, Pa., to cost close to $200,000 with equipment.

The Ajax Metal Co., 46 Richmond Street, Philadelphia, has disposed of one of its plants at Orthodox Street and Delaware Avenue, on 9½-acre tract, to the Municipal Realty Co., Philadelphia, for $250,000. The purchasing company is said to be a holding organization for another company which is now being formed and which purposes to use the property. Frank A. Cabeen, Jr., who is interested in the realty company, is treasurer of the Pennsylvania Gasoline Drill Co., 1015 Chestnut Street.

The National Farm School, Doylestown, Pa., J. L. Campbell, manager, is completing plans for a new one-story mechanics building for instruction in machinery, parts, repairs, etc., to cost about $32,000. Julian E. Simon, Broad Street and Girard Avenue, Philadelphia, is architect.

John R. Chidsey, Easton, Pa., has acquired at a trustee's sale in bankruptcy the plant and equipment of the Butler Automotive Steel Co., Palmer Township, for $30,000. No announcement has as yet been made regarding proposed operations at the mill.

The Grey Iron Castings Co., Mount Joy, Pa., has plans nearing completion for a one-story addition to its foundry to cost about $30,000 with equipment. Granville Paules, Bucher Building, Columbia, Pa., is architect.

The School District of the Borough of Northampton, Pa., is asking bids until May 4 for equipment for shops, science rooms and other departments of the junior high school, including metal lockers, etc. Calvin Nicholas, 1273 Main Street, Northampton, is secretary.

The Board of Education, Stroudsburg, Pa., is considering the installation of manual training equipment in its proposed one and two-story high school to cost $200,000, for which bids will be asked soon by Hasness & Albright, 213 Walnut Street, Harrisburg, Pa., architects.

The Lancaster Poster Advertising Co., Lancaster, Pa., care of H. Y. Shaub, 20 North Queen Street, architect, has plans under way for a one and two-story sign-manufacturing plant in Lancaster Township, to cost about $28,000 with equipment.

The Ajax Metal Co., Philadelphia, producer of bronze, brass and other non-ferrous alloys in ingots, has purchased the Foley Furnace Co., owner of a number of electric furnace patents.

The Lebanon Iron Co., Lebanon, Pa., with branch plant at Duncannon, Pa., is completing plans for extensions and improvements in its local puddle mill, with the installation of electrically-operated and other equipment, to cost $200,000.

Buffalo

BUFFALO, April 25.

CONTRACT has been let by the United States Radiator Corporation, Dunkirk, N. Y., to the L. A. Harding Construction Co., 1335 Main Street, Buffalo, for a one-story addition to its foundry, to cost $50,000 with equipment. Headquarters are at 133 Grand River Avenue East, Detroit. Homer Hoskins is local manager.

J. P. Danielson & Co., 583 Allen Street, Jamestown, N. Y., manufacturers of wrenches and other tools, will take bids about the middle of May for a proposed one and two-story addition, to cost $50,000 with equipment. Oliver R. Johnson, Fenton Building, is architect. J. P. Danielson is president.

Officials of Taggart Brothers, Inc., Watertown, N. Y., manufacturer of wrapping paper, paper bags, etc., have formed the Taggart-Oswego Paper & Bag Corporation, to maintain headquarters at Oswego, N. Y., where a new mill will be located. The new company has a capital of 4500 shares of stock, no par value. Plans are maturing for the proposed plant, including power station, to cost more than $1,000,000 with machinery. E. C. Whitney, Oswego, is architect.

The Rome Wire Co., Rome, N. Y., will soon begin superstructure for its proposed mill addition on Amherst Street, Buffalo, to be one story, 120 x 300 ft., to cost in excess of $100,000 with equipment.

The Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y., has obtained permission from city authorities to build the third unit of its new factory at an estimated cost of $300,000. It will be one story, 328 x 460 ft., of brick and steel construction.

The Vogt Mfg. Co., Rochester, manufacturer of printers' rollers, will erect a factory on Fernwood Avenue, at an estimated cost of $199,500. It will be 326 x 355 ft.

Pittsburgh

PITTSBURGH, April 25.

MACHINE tool business in this district is of fair volume. The Jones & Laughlin Steel Corporation recently bought a lathe, a radial drill and shaper, but this is the only case reported of more than one item to a single buyer. New inquiries are not numerous.

The Point Plating & Mfg. Co., 316 Penn Avenue, Pittsburgh, has leased a three-story building, 30 x 80 ft., for expansion.

The Bell Telephone Co., 416 Seventh Avenue Pittsburgh, has leased a new building to be erected on West Liberty Avenue and Edgehill Street, for an equipment repair and distributing plant, with automobile service and garage, to cost about $100,000. It is scheduled for completion early in September.

Ovens, power equipment, conveying and other machinery will be installed in the proposed ten-story plant to be built at Pittsburgh by the Loose-Wiles Biscuit Co., 1100 West Eighth Street, Kansas City, Mo., to cost in excess of $1,250,000. A site is being selected. The company has recently acquired the Peerless Biscuit Co., 3212 Liberty Avenue, Pittsburgh.

The Kier Fire Brick Co., Oliver Building, Pittsburgh, will soon begin the construction by day labor of a one-story addition to its refractory plant at Salina, Pa., to cose close to $55,000 with equipment.

The United Fuel Gas Co. 918 Third Avenue, Huntington,

The Crane Market

THE number of electric overhead cranes under consideration has been considerably increased in the past week, but inquiries for locomotive cranes are less numerous. The inquiry of Stone & Webster, Inc., Boston, for two 25-ton 68-ft. span overhead cranes is still open and the list of four locomotive cranes and several steam shovels from the Amtorg Trading Co., 165 Broadway, New York, for export to Russia, has not yet been awarded.

Among recent purchases are:

Mill Power Supply Co., Charlotte, N. C., a 15-ton crawl-tread locomotive crane with 1-cu. yd. bucket from the Northwest Engineering Co.

Stone & Webster, Inc., Boston, a 15-ton crawl-tread locomotive crane from the Northwest Engineering Co.

American Forest Products Co., Brunswick, Ga., a used 20-ton Browning locomotive crane from an unnamed seller.

Brooklyn & Manhattan Transit Corporation, Brooklyn, N. Y., two 10-ton electric cranes, each with two 5-ton electric hoists for lifting car bodies from the underframes, from the Box Crane & Hoist Corporation, and a drop table from the Whiting Corporation.

Builders' Iron Foundry, Providence, R. I., a 10-ton electric crane from the Whiting Corporation.

American Wringer Co., Providence, R. I., a 15-ton, 25-ft. span underhung crane with two 7½-ton trolley hoists and switches, monorail, etc., from the Tower Iron Works, Providence.

Duplex Printing Press Co., Battle Creek, Mich., a 5-ton, 3-motor overhead crane from the Shaw Electric Crane Co.

Penn-Dixie Portland Cement Co., Penn-Allen, Pa., a crawl-tread crane with ½-cu. yd. bucket from the Bergan Schmidt Co., through Thaleg & Hoch, Inc., Chicago.

Pullman Car & Mfg. Corporation, New Orleans, two wheel-pitting cranes from the Milwaukee Electric Crane & Mfg. Corporation.

Hugo Reich, Chicago, stone cutter, a 5-ton, 44-ft. span, 3-motor, overhead crane from the Northern Engineering Works.

National Tube Co., Lorain, Ohio, a 10-ton, 81-ft. span, double-leg gantry crane from the Alliance Machine Co.

Gary Tube Co., Gary, Ind., a 10-ton, 60-ft. span, 4-hook, overhead crane from the Shaw Electric Crane Co.

W. Va., is said to be planning the construction of a new pipe line from a point in Floyd County, Ky., to Kenova, W. Va., and vicinity, to cost more than $150,000.

The West Penn Electric Co., West Penn Building, Pittsburgh, operating the West Penn Power Co., Monongahela-West Penn Public Service Co., Keystone Power Co., and other utilities, has arranged for a preferred stock issue to total $2,500,000, a portion of the proceeds to be used for extensions and improvements. The West Penn Power Co., same address, is considering the construction of a new power substation at Uniontown, Pa., to cost $160,000.

J. F. Gillette, Sixteenth Street, Wheeling, W. Va., is at the head of a project to establish a local plant for the manufacture of automobile equipment, including headlights, etc. It is proposed to organize a company with capital of $50,000 to carry out the enterprise.

The Brockway Machine Bottle Co., Brockway Pa., is having plans prepared for a one-story addition, 75 x 125 ft., and 50 x 75 ft., to cost more than $70,000. The H. L. Dixon Co., Carnegie, Pa., is engineer.

Fire, April 20, destroyed a two-story building and other property at the repair yards of the Baltimore & Ohio Railroad, North Side, Pittsburgh, including forge and blacksmith shop and saw mill, with loss reported at more than $75,000 including equipment.

New England

BOSTON, April 25.

MACHINE tool sales in this territory the past week were confined to a few dealers, but in the aggregate were larger than for the previous week. Several pending orders, involving high-priced machines, are expected to be closed by May 1, or shortly thereafter. Sentiment in machinery circles is therefore more optimistic. Sales reported include between $30,000 and $40,000 worth of miscellaneous tools to a machine tool builder who contemplates the erection of a new shop. Later a small crane will be needed. A 53-in. Niles boring mill went to a Vermont manufacturer. Other sales were less important. A New England machine tool builder is about to close on equipment costing approximately $10,000, and at least nine other companies on machines ranging in cost from $2,000 to $4,000 each. A Worcester plant in all probability will buy some high priced drilling equipment shortly. Numerous companies are contemplating the purchase of less expensive tools.

Repair parts have been active the past week, some local houses doing business running up to $3,000 and $4,000. Small tools also are selling better, especially to large manufacturing plants.

Stedfast & Roulston, Inc., Boston, has been appointed agent for the Barber-Colman line of gear hobbers.

The U. S. Auto Service Inc., 117 Mechanic Street, Fitchburg, Mass., has purchased a site for a new garage and repair shop. No architect has been selected.

George F. Marlowe, 234 Boylston Street, Boston, architect is taking bids on a six-story, 70 x 76 ft., printing plant for the Poor's Publishing Co., Wellesley, Mass. for which motors and miscellaneous electrical equipment are needed.

Fay, Spoffard & Thorndike, 44 School Street, Boston, engineers, are taking bids on pumping and other equipment for a sewage pumping station for Gloucester, Mass. R. B. Fisher, commissioner, City Hall, Gloucester, is in charge of the project.

Ashton, Huntress & Alger, 477 Essex Street, Lawrence, Mass., architects are taking bids on a one-story, 50 x 220 ft. machine shop for the Emerson Mfg. Co., 353 Market Street, maker of machinery.

A 250-hp. motor driven centrifugal pump and miscellaneous equipment is needed for a pumping station at Southboro, Mass., under construction for the Metropolitan District Water Supply Commission, Boston. R. Nelson Molt is secretary of the commission.

The Connecticut State Board of Education has been granted $120,000 for the establishment and maintenance of a trade school in Hartford and $50,000 for a school in Willimantic. Provision previously was made for the purchase of a site and construction of a school in Hartford.

The Millers Falls Co., Millers Falls, Mass., manufacturer of hollow augers and other tools, has filed plans for a one-story addition at West Haven, Conn., to cost about $18,000 with equipment.

The Byron Weston Co., Dalton, Mass., manufacturer of paper, has awarded a general contract to the Aberthaw Construction Co., 80 Federal Street, Boston, for a one-story addition to be equipped as a machine room to cost in excess of $65,000.

The White Co., St. Clair Avenue and East Seventy-ninth Street, Cleveland, manufacturer of motor trucks, has plans for a new two-story service, repair and garage building, 100 x 200 ft., at Providence, R. I. to cost about $115,000, with equipment.

The woodworking and woodturning plant of the E. B. Estes & Sons Co., Hancock, Mass., now in receivership, will be offered at a public auction on May 17. The court has placed a minimum figure of $124,800 for the plant and machinery. The property has been appraised at $198,000.

The Pawtucket Gas Co., Pawtucket R. I., is planning an addition to its gas-generating plant on the tidewater, to be three-stories, 30 x 57 ft., to cost about $180,000. Additional equipment will be installed, including coal-gas manufacturing apparatus to double the present output. W. T. Sturtevant is chief engineer, in charge.

The Board of Sewer Commissioners, Greenwich, Conn., Henry E. Senft, chairman, is asking bids for pumping machinery and auxiliary equipment until May 5, for a proposed new sewage pumping plant in the Sound Beach district. Clyde Potts, 30 Church Street, New York, is consulting engineer.

The Bridgeport Metal Goods Co., Cherry Street, Bridgeport, Conn., will soon take bids for a two-story addition, 60 x 240 ft., to cost in excess of $50,000 with equipment. Fletcher-Thompson, Inc., 542 Fairfield Avenue, is architect and engineer.

The Howard-Arthur Mills, Inc., East Warren Street, Fall River, Mass., formerly known as the Seaconnet Mills is arranging for the complete electrification of its textile mill, including the installation of industrial motors, controls, etc. A power substation will also be built.

George W. Cristolph and George W. Criscolph, Jr., have sold their interest in the Sterling Blower Co., 618 Windsor Street, Hartford, Conn., to four employees, Robert A. Briggs, C. F. Horne, Arthur W. Edwards and Robert A. Briggs, Jr. Robert A. Briggs is now president, and Arthur W. Edwards treasurer. The company manufactures exhausters and blowers and blower systems.

Chicago

CHICAGO, April 25.

SALES of machine tools are in smaller volume and dealers report that orders in April are not up to the average for March. New inquiry is in fair volume but business before the trade is inactive and gives little or no promise of a quickening in either number or volume of sales. The outstanding order for the week, placed by the University of Chicago, included a 19-in. x 30-in. x 10-ft. gap lathe, a ½-in. high-speed sensitive drill, a 16-in. back geared shaper, a 2½ ft. radial drill, two high-speed band saws and a precision lathe.

The Studebaker Corporation, South Bend, Ind., has abandoned its plan to purchase tools for an experimental department. It is still in the market, however, for a 20-in. shaper and a 36-in. planer. The Santa Fe has added a 60-in. x 60-in. x 16-ft. open side planer to its list and the Elgin, Joliet & Eastern will buy a 12-in. swing x 4-ft. center engine lathe. Several items of long standing for the Rock Island are active and the American Manganese Steel Co., Chicago, is inquiring for a large used planer.

The Central States Steam Heat & Power Co., Madison, Wis., has had plans prepared for a new power house, to cost $350,000, at Rock Island, Ill. It also proposes to build a similar power station at Moline, Ill.

The City Council, Newton, Iowa, has approved plans for a new pumping plant to cost $155,000. Lafayette Higgins, Continental Building, Des Moines, Iowa, is consulting engineer.

The Coliseum Battery Co., 1608 South Wabash Avenue, Chicago, will erect a three-story factory at 1614 South Wabash Avenue to cost $110,000.

The American Steel & Wire Co., 208 South LaSalle Street, Chicago, will spend approximately $1,000,000 in enlarging its Anderson, Ind., plant, to provide for the production of fence that has heretofore been manufactured at its Richmond, Ind., plant. Production at Richmond will be discontinued as soon as manufacturing facilities have been provided at Anderson.

David D. Remer has acquired through the purchase of a partnership interest from Ray Phillips, full ownership of the Indiana Sheet Metal Works, 1711 141st Street, Indiana Harbor, Ind.

The Adams & Westlake Co., Chicago, will build a one-story factory, 361 x 495 ft., at Elkhart, Ind. Mundie & Jensen, 39 South LaSalle Street, Chicago, are architects.

The Harrison Sheet Metal Works, Inc., 2459 West Harrison Street, Chicago, has leased a one-story building, 50 x 100 ft., at 4225 West Kinzie Street for a new plant. The present business will be removed to the new location and additional equipment installed.

The John Deere Tractor Co., Waterloo, Iowa., manufacturer of gasoline tractors, gas and gasoline engines, etc., is reported to be planning an addition to its plant, to cost close to $90,000 with equipment.

Fire, April 20, destroyed a portion of the plant of the Peerless Wall Paper Co., Joliet, Ill., with loss reported at $250,000 including machinery. It is planned to rebuild.

The Central Service Co., 4225 Forest Avenue, Des Moines, Iowa, has plans for a new one-story ice-manufacturing plant at Fort Dodge, Iowa, to cost close to $175,000 with machinery.

The Northern Steel Products Co., Minneapolis, Minn., recently organized with a capital of $200,000, has acquired the former local plant of the Shotwell-Johnson Mfg. Co., for $140,000, and will use the property for the manufacture of steel fence posts and kindred specialties. W. B. Tacharner is president.

The Winslow Boiler & Engineering Co., Chamberlain and Knoxville Streets, Galesburg, Ill., is reported planning the construction of a new one-story plant, to cost about $50,000 with equipment.

The Chicago, Burlington & Quincy Railroad Co., 1900 Sixteenth Street, Denver, Colo., has plans for extensions and improvements in its engine house and shops at West Thirty-second and Fox Streets, to cost about $30,000. Headquarters are at Chicago.

The Department of Public Works, State of Illinois, Springfield, will soon begin extensions and betterments at the power plant, at the Elgin State Hospital, Elgin, to cost about $175,000. W. J. Lindstrom, Transportation Building, Chicago, is engineer.

The Scranton Mining Co., Hibbing, Minn., has awarded a general contract to the Dohm Building Co., local, for new shops to cost in excess of $25,000.

The Hills-McCanna Co., 2025 Elston Avenue, Chicago, manufacturer of lubricating equipment and other metal products, has engaged Frank D. Chase, Inc., 720 North Michigan Avenue, architect and engineer, to prepare plans for its proposed new plant on site recently acquired, to cost close to $100,000 with equipment. A. H. Noyes is president.

The Central States Electric Co., Iowa Falls, Iowa, has plans under way for extensions in its local steam-operated electric generating station, to include the installation of a new turbo-generator and auxiliary equipment, to cost about $300,000. The company will also make extensions in plants, substations and systems at Boone, Stratford, Stanhope, Clive and Armstrong, Iowa. The entire expansion program will cost about $250,000.

The Western Products Co., Encampment, Wyo., is considering rebuilding its mica refining mill recently destroyed by fire, with loss reported in excess of $50,000 with equipment.

The Colorado Compressed Gas Co., Denver, Colo., has completed plans for the construction of an oxygen plant in Pueblo to take care of increasing oxygen consumption in southern and western Colorado. The new plant will be in operation by Sept. 1.

Cincinnati

CINCINNATI, April 25.

WITH only two or three exceptions leading machine tool builders state that sales have been light the past week. In a number of cases orders have decreased this month and the volume for April is expected to show a recession from the level attained in March, even though March failed by a considerable margin to reach the mark set in the same month in 1926. Fresh inquiries are less numerous and buyers who have been figuring on purchasing equipment are delaying the actual placing of tools. Reduced profits in the first quarter, as revealed by the published statements of many industrial companies, are looked upon by local builders as one cause for the hesitancy in contracting for new machine tools. Another explanation is the almost total withdrawal from the market of automobile makers, who last year constituted the largest single source of machine tool business. Production in local plants has been affected by the falling off in sales, some manufacturers finding restriction of operations desirable as the volume of unfilled orders has continued to diminish.

The Baltimore & Ohio Railroad has bought a 90-in. quartering machine and is reported to be ready to close for other items on its list issued several months ago. The Rock Island has purchased a 36-in. x 14-ft. engine lathe.

Contract has been let by the International Derrick & Equipment Co., Michigan and Butties Avenues, Columbus, Ohio, to J. W. Heckart, High-Long Building, for a three-story and basement addition, 65 x 126 ft., to cost about $100,000.

The Broadway Motor Sales Co., 706-16 East Broadway, Louisville, local representative for the Chevrolet automobile, is planning the construction of a one-story service, repair and garage building 124 x 200 ft., with L-extension, 50 x 70 ft., to cost close to $100,000 with equipment.

E. W. Cooper, 510 Deaderick Street, Nashville, Tenn., engineer, has inquiries out for a large size gyratory crusher, to handle delivery from a 1½-yd. bucket on steam shovel; also for a jaw crusher, about 30 x 42 in.

The Ohio Edison Co., Springfield, Ohio, has arranged for a bond issue of $2,000,000, a portion of the proceeds to be used for extensions and improvements. The company has work in progress on a new generating plant on the Mad River, to have a capacity of 26,000 hp.

The Board of Education, Pikeville, Tenn., is considering the installation of manual training equipment in a proposed two-story high and grade school to cost $110,000, to replace a structure recently destroyed by fire. James G. Gauntt, Hamilton National Bank Building, Chattanooga, Tenn., is architect.

Schenck & Williams, Third National Bank Building, Day-

ton, Ohio, architects, have plans under way for a new multi-story automobile service, repair and garage building to cost about $250,000 with equipment.

The City Council, Peebles, Ohio, is considering the rebuilding of the portion of its municipal electric light and power plant destroyed by fire April 16, with loss reported at close to $25,000 including equipment.

The National-Columbus Garages Co., Columbus, Ohio, care of Snyder & Babbit, 16 East Broad Street, architects, has filed plans for its proposed five-story service, repair and garage building, to cost in excess of $500,000 with equipment. General contract was recently let to the H. G. Christman Co., Stevens Building, Detroit.

The City Council, Nashville, Tenn., is said to be planning the construction of a municipal airport on the Murphy Road, where a tract of about 130 acres has been secured, to include the erection of shops, hangars, etc.

The Grasselli Chemical Co., Guardian Building, Cleveland, has taken over a tract of about 300 acres of zinc properties in Jefferson County, near New Market, Tenn., and is reported to be planning early development, with installation of mining machinery, power and other equipment.

South Atlantic States

BALTIMORE, April 25.

PLANS are being considered by the American Propeller & Mfg. Co., 220-40 Grindall Street, Baltimore, manufacturer of airplane propellers, parts, etc., for a one-story addition, to cost about $25,000 with equipment.

V. P. Williams, president of the Parkmobile Corporation, 3 Failsway, Baltimore, is interested in a project to construct and operate a local plant for the manufacture of a six-cylinder automobile. The initial plant unit is expected to total about 30,000 sq. ft. of floor space. It is understood that the project will be carried out in the name of the New York Motors Corporation.

The Board of District Commissioners, District Building, Washington, is asking bids until May 11 for wood-working equipment and tools for use in the public schools.

The Burnett Boiler & Tank Works, Thomasville, Ga., is planning the installation of additional equipment, including a high-speed trip hammer and drop hammer. It also contemplates purchasing a quantity of boiler heads in carload lots.

The Monumental Machine Co., 3505 Elliott Street, Baltimore, is said to be completing plans for a one-story addition to its machine shop to cost about $20,000.

The Columbian Paper Co., Buena Vista, Va., is considering rebuilding the portion of its plant recently destroyed by fire, with loss reported at close to $50,000 including equipment.

R. B. Cralle, city manager, Farmville, Va., is asking bids until May 10 for equipment for the municipal waterworks, including one centrifugal pumping unit, motor-driven, capacity 750 gal. per min.; one 500,000-gal. steel stand pipe, and auxiliary equipment. William M. Piatt, Durham, N. C., is engineer.

The Johnson-Carper Furniture Co., 100 Second Street, S. E., Roanoke, Va., has awarded a general contract to T. J. Davis Building Construction Co., Inc., Roanoke, for its new plant, consisting of a three-story unit, 150 x 300 ft., and one-story extension, 150 x 325 ft., to cost about $130,000. An automatic conveying system will be installed.

The City Council, Baltimore, has approved an ordinance for an appropriation of $1,500,000 for the construction of a municipal airport, including flying field, hangars, shops, etc.; also an appropriation of $10,000,000 for extensions and improvements in the municipal waterworks and system, including pumping machinery, power equipment, etc.; and a fund of $10,000,000 for similar work in connection with the municipal sewage system. The measures will be submitted to citizens for ratification at a special election, May 3.

The Berkley Machine Works & Foundry Co., Norfolk, Va., is considering the early rebuilding of the portion of its plant recently destroyed by fire, with loss reported at close to $18,000. The fire also damaged a portion of the yard of the W. E. Thomas Marine Railway Co.

The Kelsey City Roofing Co., Brunswick, Ga., has leased a building on Oglethorpe Street for a new works for sheet metal products, roofing, etc.

The Georgia Hardware Co., Brunswick, Ga., has inquiries out for rock crushing machinery for the production of concrete aggregates.

The Fowler Co., Burlington, N. C., is planning the installation of equipment for the manufacture of small metal toys and is interested in securing information.

The Southern Railway System, Charlotte, N. C., has awarded contract to the Consolidated Engineering Co., 20 East Franklin Street, Baltimore, for the proposed new locomotive construction and repair shops at its Andrews yard at Columbia, S. C., for which excavations will begin at once. The entire project, with equipment, is reported to cost in excess of $600,000. G. L. Sitton is chief engineer.

The Georgia Power Co., Atlanta, Ga., is considering extensions and improvements in its power plant at Toccoa, Ga., comprising a former municipal station, recently acquired, to cost about $35,000 with equipment.

The Hackley Morrison Co., Inc., North Jefferson Street, Richmond, Va., machinery dealer, has inquiries out for a 75-kw. engine-generator set, 3-phase, 60-cycle, 2300 volts; also for a 75-hp. Corliss engine, and a similar 150-hp. unit; one 30- to 40-kw. alternator, belted type, 3-phase, 60-cycle, 2300 volts, with exciter, switchboard and auxiliary equipment.

George A. Hormel & Co., Inc., 52 East Alabama Street, Atlanta, Ga., has filed plans for a one-story and basement cold storage and refrigerating plant, to cost $45,000 with equipment.

The City Council, Richmond, Va., is considering the construction of a municipal airport and selection of site is under way, to include shops, hangars, etc. The local Chamber of Commerce, Mason Manghum, managing director, is interested in the project.

Gulf States

BIRMINGHAM, April 25.

EQUIPMENT is to be purchased by the American Fertilizer & Chemical Works, Inc., Georgetown, Tex., for the first unit of its new plant for the manufacture of lime and fertilizer products, including machinery for the development of nitrate deposits. The company was organized recently with Thomas F. Hawkins as president, and J. H. Foster, secretary.

J. T. Powell, Seventh Avenue, Miami, Fla., is at the head of a project to construct and operate a new cold storage and refrigerating plant, one story, 100 x 100 ft., to cost about $50,000 with machinery.

The Houston Oil Co., Houston, Tex., is considering the construction of a new pipe line from the Cole oilfields in Webb and Duval Counties to Houston, to be about 12½-in. diameter pipe, with compressor stations, etc., paralleling a present pipe line between the same two points. It is estimated to cost in excess of $12,000,000.

The Nicholson & Ackerson Co., Harlingen, Tex., care of the local Chamber of Commerce, is considering plans for a new one-story machine and repair shop, to cost about $45,000 with equipment.

The Fogal Dry Dock & Storage Co., 111 S. W. Sixth Street, Miami, Fla., is reported to be planning the early construction of a new drydock and boat-building plant on the south bank of the Miami River, to cost about $300,000 with equipment.

The West Texas Utilities Co., Abilene, Tex., has preliminary plans for a new one-story ice-manufacturing plant at Santa Anna, Tex., to cost $30,000 with equipment.

The Flinkote Co., P. O. Box 1122, New Orleans, roofing, is in the market for a 600-ft. trough belt conveyor, 14 to 20 in. wide, complete with troughing rolls and return idlers; also for three or four sets of head and tail pulleys for such conveyor, and one traveling automatic or hand-operated tripper; one bucket elevator, 20 ft. high, about 10 x 6 in. buckets; one 700- to 1000-hp. boiler, and open type feed water heater with oil filter, the latter of Webster or Cochrane manufacture.

The Pullman Co., Pullman Building, Chicago, has taken options on a tract of land at New Orleans, and is reported to be planning the construction of a new foundry at that place, primarily for the production of carwheels. It is understood that a subsidiary organization will be formed under Louisiana laws to carry out the project. Work is scheduled to begin early in the fall.

The Board of Control, Austin, Tex., is considering an appropriation of $50,000 for extensions and improvements in the power plant at the Austin State school, including the installation of additional equipment.

W. M. Smith & Co., Birmingham, machinery dealer, has inquiries out for two locomotive cranes, 8-wheel type, each from 10 to 15 tons capacity.

The Louisiana Power & Light Co. is said to have plans for extensions and betterments in its power plant at Sterlington, La., with installation of two generating units, each with capacity of 40,000 hp., to treble the present capacity. Ford, Bacon & Davis, 115 Broadway, New York, engineers, designers of the present station, are scheduled to act in like capacity for the expansion.

The Buick Motor Co., Jacksonville, Fla., has awarded

a general contract to the R. J. Gallespie Co., Baldwin Building, for a four-story service, repair and garage building, 80 x 250 ft., to cost $225,000 with equipment.

The Jackson Machinery Co., Millsap Building, Jackson, Miss., is in the market for one or more vertical type Diesel engine units, various capacities.

The Texas Power & Light Co., Dallas, is planning to ask bids early in May for a new ice plant at San Marcos, Tex., one story, 80 x 165 ft., to cost $40,000 with equipment.

The Fort Lauderdale Gas Co., Fort Lauderdale, Fla., has disposed of a bond issue of $375,000, the proceeds to be used for the construction of a gas-generating plant, with pipe lines, etc.

The Coleman Cooperage Co., Jackson, Tenn., has taken over about 10 acres at Ferriday, La., and is reported planning the construction of a new mill for barrel staves and heads, to cost in excess of $45,000 with machinery.

The Florida Public Service Co., Lake Wales, Fla., is considering rebuilding the portion of its steam-operated electric power plant recently destroyed by fire, with loss reported in excess of $200,000 including machinery.

Milwaukee

MILWAUKEE, April 25.

PURCHASES of machine tools still are confined to necessary requirements and are largely for replacement. Some tool builders state that orders in April will fully equal March sales, while others report that the current week must produce an unusually good business to keep even with last month. There has been some improvement in inquiry, but intending purchasers are slow to act. Few sizable building projects of an industrial nature are being undertaken in this territory. Business of machine shops and foundries is on the upgrade, however, and prospects for new tool demand are regarded as better than a month ago.

The Moloch Foundry & Machine Co., Kaukauna, Wis., manufacturer of power hammers, automatic stokers and other mechanical equipment, will start work May 1 on rebuilding its foundry, recently damaged by fire. It will be 75 x 150 ft., 1½ stories, and cost about $30,000 without equipment. R. M. Kanik is general manager.

The Ajax Rubber Co., 218 West Fifty-seventh Street, New York, has let the general contract to Nelson & Co., Inc., Janes Block, Racine, Wis., for the construction of a $500,000 addition to its tire factory at Racine, upon the completion of which it will consolidate its Eastern plant at Trenton, N. J., and the executive offices in New York with the Racine plant and offices. The new building will be mainly five stories and provide 90,000 to 100,000 sq. ft.

The Green Bay & Mississippi Canal Co., Insurance Building, Appleton, Wis., has engaged Orbison & Orbison, consulting engineers, local, to prepare plans and estimates on a proposed new steam generating plant. Specifications are not yet available.

The Common Council, Kenosha, Wis., has authorized the city manager to advertise for plans and specifications for a proposed new filtration plant costing about $100,000 for the municipal waterworks. It is planned to begin work about Oct. 1.

Adolph Mueller, 225 East McLeod Street, Ironwood, Mich., has let the contract to Alex Rosemurgy, Bessemer, Mich., for the construction of a $50,000 garage and service building, 80 x 150 ft., two stories and basement.

St. Louis

ST. LOUIS, April 25.

PLANS are being completed by the Steinite Laboratories, Inc., Atchison, Kan., for its proposed one and four-story plant, for the manufacture of radio equipment, to cost about $100,000 with machinery. Horner, Wyatt & Rhoads, Board of Trade Building, Kansas City, Mo., are architects.

The Empire District Electric Co., Joplin, Mo., has arranged for a bond issue of $9,400,000, a portion of the proceeds to be used for extensions and improvements. The company is operated by the Cities Service Power & Light Co., 60 Wall Street, New York.

The Southwestern Bell Telephone Co., Eleventh and Pine Streets, St. Louis, will take bids at once for a two-story and basement equipment storage and repair building at Kansas City, Mo., to be 120 x 180 ft., and garage and service station, 110 x 145 ft. The entire project will cost in excess of $90,000 with equipment. I. R. Timlin is company architect. W. J. Knight & Co., Wainwright Building, Kansas City, are engineers.

The City Council, Kansas City, Mo., has authorized a lease of about 675 acres along the Missouri River for the establishment of a municipal airport, to be known as the Richards airport. Hangars, repair shops and other buildings will be erected.

The Carey Ice & Cold Storage Co., Sterling, Kan., is completing plans for an addition to its ice-manufacturing and cold storage plant, to cost in excess of $25,000 with equipment.

The City Council, Macon, Mo., has preliminary plans for extensions and improvements in its municipal electric light and power plant, to include the installation of additional equipment. Burns & McDonnell, Interstate Building, Kansas City, Mo., are consulting engineers.

Fire, April 12, damaged a portion of the plant of the Thomas-Kerns Co., 500 Fortieth Street, Rock Island, Ark., manufacturer of vending machines and parts, with loss reported at $10,000.

The Gould Castings Corporation, 5256 Vernon Street, St. Louis, has taken over a tract of 6 acres, and secured option on an adjoining 5-acre tract, in the Fairfax industrial district, Kansas City, Mo. Plans are under way for a new one-story foundry, 150 x 375 ft., on a portion of the site, with electric furnace and other equipment. The new unit will be given over to the production of steel, gray iron, brass, bronze and other metal castings.

The Kansas City Power & Light Co., Kansas City, Mo., has arranged for a bond issue of $3,000,000, a portion of the proceeds to be used for extensions and betterments.

The Bartlesville Zinc Co., Bartlesville, Okla., is said to be planning extensions and improvements in its mill, including installation of additional equipment, estimated to cost $30,000.

The Mid-Continent Petroleum Corporation, Landreth Building, St. Louis, will soon begin the erection of an oil storage and distributing plant at Wood River, Ill., to cost about $110,000 with equipment. Plans are being drawn by D. X. Murphy & Brothers, Louisville Trust Building, Louisville. T. M. Martin is secretary and general manager.

Detroit

DETROIT, April 25.

BIDS will soon be asked on a general contract by the Kunkel Valve Grinder & Mfg. Co., Hart, Mich., for a two-story addition to cost $25,000, for which plans are being completed by Edwin E. Valentine, Union National Bank Building, Muskegon, Mich., architect.

The Wolverine Iron Works, 6782 Goldsmith Street, Detroit, has completed arrangements for the purchase of a building at Romeo, Mich., and will remodel for a branch foundry. It is planned to begin operations in May.

The City Council, Fordson, Mich., contemplates the installation of pumping equipment in connection with extensions and improvements in the municipal waterworks, for which a bond issue of $100,000 has been approved.

The Buick Motor Co., 460 West Canfield Street, Detroit, has leased a three-story building, 185 x 200 ft., to be erected at Cass Avenue and Amsterdam Street, to cost more than $125,000, for a new service and factory branch. General contract has been let to the Everett Winters Co., local.

The Board of Education, Rogers City, Mich., plans the installation of manual training equipment in its two-story high school to cost $200,000, for which bids have been asked on a general contract. R. V. Gay, St. Johns, Mich., is architect.

The McCord Radiator Mfg. Co., 2587 East Grand Boulevard, Detroit, manufacturer of automobile radiators, plans to rebuild the portion of its plant recently destroyed by fire, with loss reported at $80,000 including equipment. The same fire also destroyed a portion of the adjoining works of the Royal De Luxe Bus Mfg. Co., with loss reported at close to $50,000 with equipment.

The Village Council, Center Line, Mich., Anthony Weigand, village clerk, is asking bids until May 5 for a 100,000-gal. capacity steel water tank, mounted on 100-ft. steel tower, for the municipal water system. Walter J. Lehner, Ulrich Bank Building, Mount Clemens, Mich., is engineer.

The Board of Education, Flint, Mich., plans the installation of manual training equipment in its new Northern senior high school to cost about $425,000, for which superstructure will soon begin. General contract has been let to the Jacobson Brothers Co., Duluth, Minn.

The Chrysler Corporation, Detroit, has filed plans for the erection of an addition at its automobile plant, one story, 105 x 190 ft., for which a general contract recently was let to the Everett Winters Co., 1651 East Grand Boulevard. It will cost in excess of $85,000 with equipment.

The Hess Aircraft Co., Inc., Wyandotte, Mich., is carrying out an expansion program, including the installation

of additional equipment, hangar and other structures. A tract of 175 acres adjoining the plant has been acquired for the latter purpose. The company is arranging a new production schedule providing for completion of an airplane a day. Motors will be of 180-hp. Hispano type.

Vellner Conveying Systems, Inc., 5287 Twenty-third Street, Detroit, has been organized to operate as a sales and engineering company for Samuel Olson & Co., Chicago, makers of equipment for the mechanical transportation of materials. The Detroit company will also contract for and design special equipment where the Olson design cannot be used.

The National Automatic Tool Co., Richmond, Ind., maker of multiple spindle drilling and tapping machinery, will open an office in the General Motors Building, Detroit, on June 14, in charge of T. C. McDonald and G. W. Schepman.

Indiana

INDIANAPOLIS, April 25.

CONTRACT has been let by the Wayne Tank & Pump Co., Fort Wayne, Ind., manufacturer of gasoline pumping equipment, etc., to the Indiana Engineering & Construction Co., Fort Wayne, for a one-story top addition, to cost about $25,000.

The Nash Motor Co., North College Street, Bloomington, Ind., representative for the Nash automobile, has completed plans for a two-story machine shop, garage and sales building, 85 x 130 ft., to cost about $65,000 with equipment.

The General Electric Co., Fort Wayne, Ind., has plans for a one-story addition to its local plant, formerly the Fort Wayne Electric Works, 45 x 85 ft., to cost about $20,000.

The Board of Public Works, East Chicago, Ind., has awarded a general contract to H. B. Olney, 3421 Walting Street, Indiana Harbor, Ind., for new municipal equipment shops, consisting of machine and repair shop, garage and service building for city-owned automobiles, and equipment storage and distributing plant. The entire project will cost $185,000 with equipment.

The Wayne Cylinder Grinder Co., Fort Wayne, Ind., has concluded arrangements for a lease of a new building to be erected on local site, estimated to cost $55,000, and will establish an enlarged plant. Pohlmeyer & Pohlmeyer, Fort Wayne, are architects.

The Hammond Electric Co., Gary, Ind., manufacturer of electrical equipment, is completing plans for a one-story addition to cost about $17,000.

The Board of Education, Lawrenceburg, Ind., plans the installation of manual training equipment in a proposed addition to the Greendale school, estimated to cost $75,000, for which bids will soon be asked on a general contract. Henkel & Hanson, Heinemann Building, Connersville, Ind., are architects.

The Home Telephone & Telegraph Co., 303 East Berry Street, Fort Wayne, Ind., has asked bids on general contract for a new two-story equipment storage, distributing and repair building at Jacobs Avenue and Clinton Street, estimated to cost $100,000. Charles R. Weatherhogg, 250 West Wayne Street, is architect.

The Claud S. Gordon Co., Chicago, furnace engineer, has opened a branch office at 617 Merchants Bank Building, Indianapolis, in charge of S. A. Silbermann, the company's district engineer.

Cleveland

CLEVELAND, April 25.

SOME machine tool dealers report a little improvement in orders and inquiries but others see no change in the situation. Business is widely scattered and few orders are for more than single machines. Much of the prospective business is dragging. Turret lathes continue in fair demand but orders are all for single tools. There is not much activity in punching and shearing machinery or in forging machinery. The Cleveland Punch & Shear Works Co. has purchased a Pratt & Whitney 14-in. vertical surface grinder, and a Toledo manufacturer of automobile hardware purchased a No. 2 Pratt & Whitney die sinker. Other sales include a 4½-ft. Morris radial drill to an Akron rubber mold manufacturer.

The Geometric Stamping Co., Cleveland, has purchased the automobile muffler division of the A-C Spark Plug Co., Flint, Mich., and the Gray-Hawley Mfg. Co., Detroit, maker of automobile mufflers and will move both plants to Cleveland. The Geometric company has leased, with the option to purchase, the plant on Taft Avenue formerly occupied by the H. G. Walker Co., which has 60,000 sq. ft. of floor space. The equipment of the Flint plant is being moved to Cleveland. The Walker plant will be used for the manufacture of mufflers and also for making railroad stampings. Emmet P. Gray, who designed the Gray-Hawley muffler, will be affiliated with the Geometric company as consulting engineer and George H. Morgenstern, for some years automotive sales manager of the Bullard Machine Tool Co., Bridgeport, Conn., will act as district sales manager for the Geometric company in Detroit. D. R. Jones is president and general manager of the Geometric Company.

The Davis Machinery Exchange, 1612 Oakwood Avenue, Toledo, Ohio, dealer in new and used machinery, will occupy a new and larger warehouse at St. Clair and Washington Streets after May 1.

The Union Metal Mfg. Co., Canton, Ohio, manufacturer of metal lighting standards has awarded contract for a factory extension.

The Metallic Binding Co., Painesville, Ohio, has awarded contract for a one-story, 150 x 200 ft., factory.

The International Harvester Co., Chicago, will shortly begin the erection of a four or six-story warehouse in Cleveland at an estimated cost of $400,000.

The New York, Chicago & St. Louis Railroad Co., Cleveland, has awarded a general contract to the Hecker-Moon Co., for a one-story locomotive repair shop, 40 x 210 ft., on East 152nd Street, to cost close to $70,000 with equipment.

The Bailey Meter Co., 2015 East Forty-sixth Street, Cleveland, recently reorganized, has acquired a one and two-story factory on a 5½-acre tract on Ivanhoe Road, N. E., totaling about 100,000 sq. ft. of floor space, and will use for expansion.

The Continental Terminals, Inc., Cleveland, care of Wilbur Watson & Associates, 4614 Prospect Avenue, engineers recently organized, has plans for a twelve-story ice-manufacturing and cold storage plant on University Road, to cost close to $1,750,000 with machinery.

Pacific Coast

SAN FRANCISCO, April 20.

PLANS have been filed by the Santa Rosa Oil Burner Co., Santa Rosa, Cal., for a one-story plant, to cost close to $20,000 with equipment. Frank Sandercock is general manager.

The White Co., 3851 Santa Fe Avenue, Vernon, Los Angeles, manufacturer of motor trucks, with main plant at Cleveland, has awarded a general contract to Stone & Webster, Inc., Los Angeles, for a one-story factory branch, service and repair works, 200 x 325 ft., to cost close to $100,000 with equipment.

The New Metal Products Co., Fifty-ninth and Doyle Streets, Emeryville, Cal., is reported to have plans under advisement for rebuilding the portion of its plant recently destroyed by fire, with loss reported at more than $60,000 including equipment.

The Herbst Mfg. Co., 1525 Mission Street, San Francisco, manufacturer of sheet metal goods, is considering the erection of a one-story plant, to cost approximately $35,000 with equipment.

The Southwest Ice Investment Co., 210 West Seventh Street, Los Angeles, plans the construction of an addition to the plant of the Coast Ice Co., near Laguna Beach, Cal., recently acquired. It will cost about $65,000 with equipment.

The Shell Union Oil Co., 200 Bush Street, San Francisco, has arranged for a bond issue of $50,000,000, a portion of the proceeds to be used for extensions and improvements, including the acquisition of additional oil lands and facilities.

The Board of Regents, University of Arizona, Tucson, has authorized a fund of $45,000 for extensions and improvements in the power plant at the institution, including the installation of two new watertube boilers and auxiliary equipment.

The Board of Education, Lewiston, Idaho, is considering the installation of manual training equipment in its proposed two- and three-story high school to cost $225,000, for which bids will be asked on a general contract early in May. C. Richardson, Weisgerber Building, is architect.

The Banta-Carbona Irrigation District, Tracy, Cal., W. Schlossman, secretary, is asking bids until May 11 for electric meters, recording devices and other electrical instruments. Thomas Means, 216 Pine Street, San Francisco, is engineer.

The Geiger Iron Works, Stockton, Cal., manufacturer of special machinery and mechanical equipment, plans the construction of an addition on adjoining site, 200 x 300 ft., to cost close to $30,000 with equipment.

The Bureau of Power & Light, Los Angeles, has secured permission to proceed with the construction of the pro-

posed municipal steam-operated electric power plant at San Pedro Harbor, recently delayed through injunction proceedings. The plant will cost in excess of $1,000,000 with equipment. E. F. Scattergood is chief engineer.

The United States Steel Products Co., Seattle, will build an addition, 78 x 270 ft., to its warehouses in that city and will also erect a new warehouse, 300 x 315 ft., in Portland, Ore. It is the intention of the company to carry larger stocks of steel in both warehouses, including steel sheets, this product not having been carried heretofore.

The firm of W. L. Rawn & Co., 318 Alaska Building, Seattle, has been organized and has leased the machine shop in the former plant of the Washington Iron Works, where a stock of plates, shapes and other steel products will be carried.

Canada

TORONTO, April 25.

ALTHOUGH machine tool sales continue in good volume, much of the current buying is confined to units of one, two or three to a customer, and is mostly for replacement needs. Taken as a whole, however, machine tool sales are well up to expectations, with prospects good for the summer and fall.

The Steel Equipment Co. of Canada, Ltd., with main office at Ottawa, Ont., has asked tenders for the construction of an addition, 50 x 100 ft., to its plant at Pembroke, Ont. Plans have also been prepared for a second addition 35 x 100 ft.

The Ice-O-Matic Refrigerating Co., Ltd., has obtained a site at Oshawa, Ont., and proposes to remove its plant from Windsor to the new location. Construction work on the Oshawa plant will start without delay. Officers of the company include R. A. Stapells, Toronto; John Stacey, C. N. Henry and Frank L. Mason of Oshawa.

The General Motors Corporation of Canada, Ltd., Oshawa, Ont., will erect a new building, 180 x 620 ft., to cost $500,000. Construction work will start immediately.

The Carpenter Hixon Co., Ltd., which recently took over the Blind River, Ont., property of J. J. McFadden, Ltd., proposes to start work immediately on the erection of additional saw and lumber mills.

Foreign

THE Ministry of Public Works, Madrid, Spain, has appropriated funds for public works construction and improvements at various ports, including the installation of additional equipment. Two electric traveling cranes will be purchased for the port works at Ferrol; a series of warehouses, with conveying machinery and material-handling equipment, will be built at Barcelona, estimated to cost $160,000. Bids will soon be asked for the construction of a suction dredge for the port of Seville. The American Consulate, Madrid, Charles H. Cunningham, commercial attaché, has information regarding the projects.

Industrial interests at Nagoya, Japan, are completing plans for the organization of a company with capital of 10,000,000 yen (about $4,985,000) to construct and operate a plant for the manufacture of aluminum. A site will be selected in the vicinity of Toyama Prefecture. The majority of the equipment will be electrically operated. The American Consulate, Nagoya, H. T. Goodier, consul, has information regarding the project.

The Compania Papelera Nacional S. A., Havana, Cuba, has work under way on a new plant near the city limits for the production of book and other light-weight papers. It is reported to cost in excess of $400,000 with machinery.

The Lago Oil & Transport Corporation, 120 Broadway, New York, operating oil properties in Venezuela and other countries in South America, is arranging for an increase in capital from 4,000,000 to 5,500,000 shares of stock, a considerable portion of the proceeds to be used for expansion, including purchase of new properties, additional pipe lines, wells, etc. F. H. Wickett is president.

The Government of Poland, Warsaw, is planning the construction of a series of grain elevators in different parts of the country to cost about $6,700,000, following the report of a special commission, appointed several months ago to determine the advisability of carrying out the project. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, reference Poland 239556. The American Consulate, Warsaw, Walter A. Leonard, consul, also has information.

The L. & N. Coal Distillation, Ltd., London, England, has been organized to take over the property, patents and processes of the Sensible Heat Coal Distillation Co. and contemplates the establishment of a plant for the production of oil from coal on a commercial basis. The American Consul General, American Consulate, London, has information regarding the project.

The Government of Montevideo, Uruguay, has had plans drawn for 15 power transformer substations in connection with a power plant at Montevideo, and is interested in receiving quotations from American manufacturers. Plans and specifications at the office of the Electrical Equipment Division, Bureau of Foreign and Domestic Commerce, Washington, reference EE 1030.

Industrial Finances

The Trumbull Steel Co., Warren, Ohio, reports net profits for the quarter ended March 31, of $299,696 after all charges, equal after preferred dividends to 22c. on the common stock.

The Doehler Die Casting Co., Brooklyn, has called a special meeting of stockholders for April 22 to vote upon increasing the common no par value shares by 60,000 and the $7 cumulative preference shares without par value by 10,000. The company now has an authorized capitalization of 150,000 shares of no par common stock and 20,000 shares of preferred, par $50.

The Marion Steam Shovel Co., Marion, Ohio, will be reorganized under the same name with a capital stock of $3,100,000 in preferred shares and 50,000 shares of no par common stock. The capital structure will also include $3,600,00 in 6 per cent twenty-year sinking fund gold bonds. The company was recently taken over by W. A. Harriman & Co., Inc., New York investment banker. It is announced that the company's operations will be continued by the present executive personnel.

The Moore Drop Forging Co., Springfield, Mass., will pass the $1.50 quarterly dividend on its Class A stock ordinarily payable May 1. Business of the company fell off sharply during the last half of 1926 due to the decline in automobile production. While the early months of this year showed increased business, the company failed to earn the dividend owing to keen competition among New England drop forge plants for bookings.

The Virginia Iron, Coal & Coke Co., Roanoke, Va., reports total net revenue for the first quarter of 1926 of $9,485, amounting, after deduction of bond interest and other charges, to a net loss for the period of $62,440.

The Youngstown Sheet & Tube Co., Youngstown, Ohio, had a net income for the quarter ended March 31, 1927, of $2,256,043, equivalent after preferred dividends to $2.03 a share on the no par common stock, and compared with $3,804,837, or $3.60 a share for the first quarter of 1926.

The M. A. Hanna Co., Cleveland, during the first quarter of the present year, had an income of $333,749 after all charges, equivalent to 30c. a share on the preferred stock. In the corresponding quarter of 1926 the company reported a deficit of $47,529.

At a recent stockholders' meeting the common stock of the Interstate Iron & Steel Co., Chicago, was placed on a $4 annual dividend basis.

Stockholders of the Billings & Spencer Co., Hartford, Conn., have made provision for a reorganization of that company. Committees have been appointed for the protection of security holders. Under adverse conditions progress is being made by the company. Approximately 400 are now employed, as compared with 650 a year ago, yet a larger production is now obtained.

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